Exhibit 3

WATERWORKS OVERVIEW

CENTRAL CONTROL SYSTEM OVERVIEW

The Waterworks of the IWCR system is controlled by the Central Control System (CCS). The CCS is a system of computer consoles located at the central offices of IWCR which receives and displays information from monitoring transmitters throughout the Waterworks. From this location, plant operators control the water distribution system, utilizing the monitor displays and, in turn, instruct treatment plant operators on the desired plant production rates.

The system consists of a Supervisory Control and Data Acquisition (SCADA) system. At important locations in the distribution system and at the plants, important parameters, such as flow rate, pressures and tank levels, are measured using meters and sensors. These meters and sensors send data to a local device, which relays it to the CCS. Operators at the CCS can then ascertain the conditions at these remote locations. Based on this data, the operators control valves and pumps to ensure the Waterworks provides enough flow and pressure to all the customers in the service area. The system operator also instructs the plant operators on the production rates required to maintain tank levels, booster station suction and discharge pressures, and general system pressures and flow volumes to supply water to meet the various demands in the several pressure zones of the Waterworks.

Like most water distribution systems, the IWCR Waterworks is very dynamic. Opening a given valve in one area of the Waterworks affects other areas. With this mode of operation, the skill of the system operator is a very important element. It requires three to four years of training for an operator to gain the skill and interpretive experience to understand the Waterworks dynamics. Thus, it is recommended that all this field data be available at one location to review what effects result from changing field devices (e.g., valves, pumps, etc.) This is the reason for the CCS.

The WTP's are not monitored nor controlled at this facility. Only the finished water reservoirs and alarms, such as security, power outage, flooding, chlorine leakage, temperature, etc. are monitored from the CCS. Similarly, the plants do not have access to the CCS. Not all plants have the same number or type of signals sent to the CCS.

The topology of the Waterworks is centralized and unidirectional. That is, all field information is fed to a central site, and information is fed in one direction only (i.e., from the field to the CCS).

The CCS staff runs the Waterworks. Operators at the CCS tell personnel at the water treatment plants how much water to make and when by telephoning the operators at the four surface water treatment plants and eight groundwater treatment plants. If there is an emergency, an operator solves it. There are no computer backup controls. The operator decides when and how to control the Waterworks, based upon the data provided by the CCS. The only exceptions to this are a few emergency pressure relief valves which operate automatically if pressures drop to an unacceptable low level.

Each of the pressure districts can be fed from two separate water sources using bleeder valves. The backup to this system is a pressure relief valve that provides automatic control if pressure is lost in a district. The CCS controls the bleeder valves.

The CCS uses the software Intellution FIX 6.15. They have primary and backup controllers (dual computers, monitors, mice, and keyboards). All of this equipment is located in the CCS Room. The equipment was installed in 1997. If the building becomes uninhabitable, the Company would have to rely on operators controlling facilities onsite manually until they could gain access to the controllers. As many of the IWCR sites are un-manned, operators would have to be dispatched to a site to make changes in the operations.

Quindar tone telemetry and Allen-Bradley Programmable Logic Controllers (PLCs), all with single power supplies, are used to transmit the information from the sensors to the control system. There are no redundant sensors or inputs and outputs (I/O). All information is transmitted over leased telephone lines. There is very little automatic control in the current setup.

There is a standby generator for the CCS in case of a power outage.

The IWCR 5 Year Capital / Work Plan, attached to Exhibit 8, includes very limited control system improvements. These are limited to additional inputs at the plants, pump stations, and distribution system.

The IWCR 5 Year Capital / Work Plan includes changing from leased line to radio. The existing leased telephone lines are unreliable. While radio is not immune to communication problems, radio is generally considered to be more reliable than leased telephone lines.

None of the following items are included in the IWCR 5 Year Capital / Work Plan:

1. The existing tone telemetry system is outdated and unreliable. In addition, it is difficult to find spare parts.

2. Plant personnel have very limited information on what is occurring in the distribution system due to the limited number of reporting points. The existing system is adequate to accommodate additional data points. Only 3,800 to 3,900 data points are currently being used in the control system. The control system can support 20,000 data points.

3. The control of the water distribution system relies on operator judgment. This places a lot of responsibility in one location. Should the operators not be available as a result of widespread illness or other reasons places the entire Waterworks in jeopardy.

4. Another significant weak point in the Waterworks is the single CCS location. All data is fed from the field to one location only, the CCS. If the CCS were to become unavailable (e.g., a fire, act of God, terrorism, etc.), there is no backup

system. Operators would be forced to control the Waterworks from field components. However, since the existing system is centralized and unidirectional, there would be no way for an operator in the field to know what effects would occur by making field adjustments.

5. Another weakness is in the way the Waterworks is controlled. These operators are highly skilled and experienced personnel. They make virtually all decisions regarding quantity and quality of water to the customers. This places too much authority in one location. Also, it makes these personnel difficult to replace.

6. There is insufficient data being transmitted from the field.

7. The newest plants (e.g., South wellfield) already use more automation successfully.

8. There are insufficient redundancies in the system.

Many of the existing components in the existing Waterworks can be salvaged. For example, virtually all field sensors and their associated wiring can be reused. However, the recommended changes are so universal as to be considered a new Waterworks.

WATER TREATMENT PLANTS / PROCESSES / WASTEWATER TREATMENT PLANT

The greater Indianapolis area receives its water from 12 WTP's. Pertinent general information regarding these plants is shown in Table 3-1.

Table 3-1 WATER TREATMENT PLANT SUMMARY

Water Plant Name	Water Source	Approximate Average Annual Flow Rate	Approximate Percent of the Total Flow
White River Treatment Plant	Aqueduct from the White River and wells	76 MGD	54%
Fall Creek Treatment Plant	Fall Creek through Geist Reservoir and wells	22 MGD	15%
White River North Treatment Plant	White River and wells	16 MGD	11%
T.W. Moses Treatment Plant	Eagle Creek through Eagle Creek Reservoir	8 MGD	6%
Ford Road	Wells	1 MGD	1%
Geist	Wells	2 MGD	1%
Harding	Wells	3 MGD	2%
South Well Field	Wells	7 MGD	5%
Harbour East	Wells	3 MGD	2%

Harbour West	Wells	2 MGD	1%
Darlington	Wells	1 MGD	1%
Liberty	Wells	1 MGD	1%
TOTALS:		142 MGD	100%

Table 3-1 indicates that, based on the number of plants, most of the plants treat groundwater. However, on a volumetric basis, as much as 80 percent of the water in the IWCR Waterworks comes from surface water sources.

In addition to these 12 water plants, there is one wastewater plant. This plant, Irishman's Run, is located in the extreme Southeast corner of Boone County. It is a pre-packaged facility designed to accommodate approximately 175 homes (approximately 525 people). It processes approximately 61,000 gallons of wastewater per day, which results in a sludge production of approximately 3,000 gallons per month. Sludge is hauled to the Belmont wastewater treatment plant in Indianapolis for disposal.

Location of the 12 water plants, along with other elements of the Waterworks, is shown on Exhibit 1.

Overall, this Waterworks differs from major metropolitan water systems. Most water systems for cities similar in size to Indianapolis (and its surrounding communities) consist of a few (i.e., 2 to 4) major plants. This Waterworks has 12 water plants, varying in capacity between less than one MGD to more than 70 MGD. Most cities draw from one type of source (i.e., either groundwater or surface water). Indianapolis has considerable amounts of both sources. General conclusions about all the plants cannot be made due to raw water variation.

Given the age of many of the plants, it is likely that there may be issues not readily apparent during tours or prior investigations by IWCR. For example, it is likely that many plants have lead paint, but limited testing for lead paint has been performed by IWCR. Likewise, asbestos containing materials are likely located in older plants, but, again, limited tests have been performed by IWCR to verify its existence.

Many plant components are old but age alone is not a sole indicator of performance. Well-maintained equipment may be adequate for the intended purpose. However, it is likely that older equipment will need more frequent repairs, will be less efficient, and will not comply with current standards of safety or performance. No analyses were performed to evaluate components or equipment based upon age alone.

The assessment of the water plants and wastewater treatment plant was based upon data provided by IWCR personnel, monthly operating reports submitted to IDEM, discussions with IWCR personnel and plant tours. Where applicable, this data was compared against industry standards. The following addresses each water plant individually.

T.W. Moses Station - The T.W. Moses Station was constructed in 1976 and is a surface WTP. The facility is located in the northwest section of the City of Indianapolis. The source water for

this facility is the Eagle Creek Reservoir, which is owned by the City of Indianapolis. IWCR has a contract with the City of Indianapolis limiting the amount of water that can be removed from the Eagle Creek Reservoir. The contract currently allows an annual withdrawal of 12.4 MGD with a maximum monthly average withdrawal of 19.8 MGD. The facility has a design treatment capacity of 16 MGD and a hydraulic design capacity of 24 MGD. The average daily flow being treated ranges from 14 to 16 MGD. The facility has treated a peak hourly flow of 20 MGD with a minimum hourly flow of eight to nine MGD. The existing treatment facilities include rapid mix, flocculation/sedimentation, dual media filters, and a finished water reservoir. Portions of the plant can be run in either series or parallel. The filter backwash system includes a 250,000 gallon elevated storage tank and a wash water recovery tank. The sludge is discharged to the sanitary sewer system, and the wash water is recycled to the influent line of the rapid mix tank. The chemicals currently being used in the treatment process include sodium hypochlorite, alum, cationic Cat-Floc-T, sodium bisulfite, caustic soda, hydrofluoricsilicic acid, powdered activated carbon, and aqueous ammonia. The high service pumps are located in the same building as the treatment process. There are five electric pumps and one diesel pump. The facility has two separate power feeds plus a standby generator, which is capable of supplying power to the chemical feed system, a low lift pump, and one high service pump. The standby generator is started manually.

The major issues in this facility are summarized in Table 3-2.

Table 3-2 T.W. Moses Plant

No.	Description of Issue at T. W. Moses Plant	In the IWC 5 Year Capital Plan?
1	Taste and odor issues	No
2	Additional source water	Yes
3	Additional baffles for compliance with disinfection	Yes
4	Enhance security	No
5	New chlorine contact chamber	Yes
6	Revising backwash system to use filter effluent	No
7	Adding powder activated carbon for atrazine	Yes
8	Additional automation	No
9	Double wall containment for chemicals	No
10	Chemical line separation	No
11	Detailed power study	No
12	Various filter improvements	No
13	Correcting plant drains	N
14	Monitor Eagle Creek headwaters	Yes
15	Additional wells	Yes
16	Revamp grounds piping	Yes
17	Automatic Transfer Switch for Standby Power	Yes

South Wellfield Station - The South Wellfield Station was constructed in 1997, and is a groundwater treatment plant. The facility is located in the southern section of the City of Indianapolis. At the time of the tour, the plant capacity was being expanded to treat an

additional 12 MGD, increasing its capacity to 24 MGD. The expansion should be finished by the end of 2001. This facility is located in one of the higher growth areas around the City of Indianapolis. It also supplies water to the IWC Morgan District. In the future, this facility will be used to supply water to the Harding Station service area, and the Harding Station treatment system components will be taken out of service. The Harding Station wells will then pump to the South Wellfield Treatment Plant for treatment. Currently, this facility is treating an average daily flow ranging from 8 to 11 MGD. The peak hourly flow that has been experienced at this facility is 12 MGD with a minimum hourly flow of two MGD. The existing treatment facilities include aeration, filtration, and a finished water reservoir. The filter backwash system includes a 320,000 gallon wash water supply tank and dual wash water recovery tanks. The sludge is discharged to the sanitary sewer system. The supernatant is recycled to the head of the plant. The chemicals currently used at this facility include sodium hypochlorite, potassium permanganate, polymer, ammonia, and fluoride. This facility does not have two separate power sources. The facility does have two diesel driven high service pumps, and a diesel driven standby generator for essential equipment such as the chemical feed systems.

The major issues in this facility are summarized in Table 3-3.

Table 3-3 South Wellfield Station

No.	Description of Issue at South Wellfield Station	In the IWC 5 Year Capital Plan?
1	Additional wells and collecting lines	Yes
2	Additional pumps	Yes
3	Chemical containment improvements	Yes
4	Plant expansion	Yes
5	Address influent high ammonia levels	No
6	Enhance security	No
7	Filter improvements	No
8	Additional automation	No

Harding Station - The Harding Station was constructed in 1989 and is a groundwater treatment plant. The facility is located in the southern section of the City of Indianapolis very close to the South Wellfield Station. The facility has a capacity of 6.5 MGD, and the wellfield can provide eight MGD. It was expanded in 1993 and 1994. In both years, 1.33 MGD of capacity was added. The existing treatment facilities include aeration, pressure sand filters, and ground storage tanks. The filter backwash system uses finished water for backwashing. The wash water is discharged to a lagoon, which does not have a discharge line. The chemicals used at the facility include gaseous chlorine, ammonia, and fluoride. This facility is scheduled to be abandoned in the near future. The South Wellfield Station will provide water to area currently being serviced by this facility by treating the Harding Station wellwater at the South Wellfield Station. (Note: This same type of plant configuration is used at the Geist Station and Ford Road Plant.)

The major issues in this facility are summarized in Table 3-4.

Table 3-4 Harding Station

No.	Description of Issue at Harding Station	In the IWC 5 Year Capital Plan?
1	Abandon the plant	Yes
2	Lagoon modifications	No
3	Paint facility	No
4	Convert chlorine gas to hypochlorite	No
5	Enhance security	No
6	Additional automation	No

If this plant is abandoned immediately, the above issues are no longer important.

White River Plant - Parts of the White River Plant were constructed in the early 1900's. Major additions were added in the 1920's, 1950's and 1970's. The rated capacity of this facility is 96 MGD with a maximum hydraulic capacity of 120 MGD, making it the largest facility in the IWCR Waterworks. The facility treats both groundwater and surface water. Approximately 10 to 15 percent of the source water is from groundwater. The facility is located northwest of the downtown area of the City. The source water is the White River via the IWCR canal and two wellfields which have a total of 19 wells. The White River WTP is a conventional alum coagulation treatment facility with flocculation, sedimentation, and dual media filtration. Primary disinfection is achieved using gaseous chlorine, and a distribution system residual is maintained with chloramines. Finished water is stored in one of three reservoirs before being pumped into the distribution system. A chlorine contact basin was added in 2001 to the treatment train to increase the contact time (CT). The filter backwash system consists of an elevated 250,000 gallon wash water tank and a train for treating the backwash and handling the residuals, which includes a backwash residual tank, a settling basin residual tank, and lamella plate settling tanks. The chemicals currently being used at this facility include gaseous chlorine, alum, polymer, ammonia, powered activated carbon, hydrofluorosilicic acid, and lime. The service area of this facility is not considered a high growth area. However, the area does consume 70 percent of the water produced at the White River WTP.

The major issues in this facility are summarized in the Table 3-5.

Table 3-5 White River Plant

No.	Description of Issue at the White River Plant	In the IWC 5 Year Capital Plan?
1	Rehabilitate aqueduct	Yes
2	Canal levee survey	Yes
3	Lab equipment	Yes
4	Chlorine contact chamber	Yes
5	Chemical conversion	Yes
6	Residuals handling	Yes
7	Additional wellwater	Yes
8	Water rights	Yes
9	Close old wells	Yes
10	Upgrade filter bottoms	Yes

11	Filter Gallery Tables	Yes
12	Increase washwater capacity	Yes
13	Install basin dechlorination feed	Yes
14	Upgrade generators	Yes
15	Taste and odor issues	No
16	Asbestos abatement	No
17	Lead paint abatement	No
18	Automation improvements	No
19	Detailed power study	No
20	Replace or rehabilitate both intake structures	No
21	Replace chemical pumps	No
22	Replace gates near rapid mix	No
23	Replace large valves on finished water lines	No
24	Revamp surface wash system	No
25	Replace freight elevators	No
26	Backup to 72-inch finished water line	No
27	Replace raw water ducts	No
28	Enhance security	No

Fall Creek Station - Parts of the Fall Creek Plant were constructed in 1915. These facilities included the original pump station and the 1.5 MG finished water reservoir. In 1927 an additional finished water reservoir with a capacity of six MG was added. The filter plant was constructed in 1942 with a capacity of 16 MGD. The filter plant was further expanded in 1948 when another 16 MGD of capacity was added. The last additions were added in 1998 when a backwash tank, a settling basin and residual tank and lamella separators were added for residual treatment. The rated capacity of the facility is 32 MGD with a peak hydraulic capacity of 40 MGD making this the second largest surface WTP in the IWCR Waterworks. The plant treats both surface water and groundwater with the majority of water treated being surface water. Typically, two to five percent of the source water is groundwater during average daily flows. The percentage of groundwater in the source water can reach 25 percent during maximum flow conditions. The facility is located northeast of the downtown area of the City. The main source of water is Fall Creek. Surface water is diverted from Fall Creek by a low head dam to a mill race. Six wells provide the groundwater for this facility. The Fall Creek Plant is a conventional alum coagulation treatment facility with flocculation, sedimentation, and dual media filtration. Primary disinfection is achieved using bleach (sodium hypochlorite), and a distribution system residual is maintained with chloramines. Finished water is stored in one of three reservoirs before being pumped into the distribution system. The chemicals currently being used at this facility include bleach, alum, polymer, powered activated carbon, ammonia, hydrofluorosilicic acid, and lime. There is insufficient land on the current site for future expansion of this facility.

The major issues in this facility are summarized in Table 3-6.

Table 3-6 Fall Creek Station

No.	Description of Issue at the Fall Creek Station	In the IWC 5 Year Capital Plan?
1	Upgrade pump station	Yes

2	Upgrade heating	Yes
3	Chlorine contact chamber	Yes
4	Chemical conversion	Yes
5	Residuals handling	Yes
6	Additional wellwater	Yes
7	Water rights	Yes
8	Filter influent valve replacement	Yes
9	Filter effluent valve replacement	Yes
10	Install plant power generator	Yes
11	Install basin dechlorination feed	Yes
12	Residuals handling	Yes
13	Taste and odor issues	No
14	Automation improvements	No
15	Asbestos abatement	No
16	Lead paint abatement	No
17	Replace freight elevators	No
18	Enhance security	No

Geist Station - The Geist Station was constructed in 1989, and is a groundwater treatment plant. The facility is located in the northeast section of the service area. The facility has a rated capacity of four MGD and a maximum output of four MGD. The wellfield can provide six MGD. The existing treatment facilities include aeration, pressure sand filters, and ground storage tanks. The filter backwash system uses finished water for backwashing. The wash water is discharged to a lagoon, which has a discharge line to Fall Creek. The discharge is allowed under an NPDES permit. The chemicals used at the facility include sodium hypochlorite, ammonia, and fluoride. Currently, the facility is treating 1.5 MGD on an average day and two MGD on a peak day. (Note: This same type of plant configuration is used at the Harding Station and Ford Road Plant.)

The major issues in this facility are summarized in Table 3-7.

Table 3-7 Geist Station

No.	Description of Issue at the Geist Station	In the IWC 5 Year Capital Plan?
1	Install fence	Yes
2	Automation improvements	No
3	Enhance security	No

Harbour West Plant - The Harbour West Plant was constructed in 1972, and is a groundwater treatment plant. The facility is located to the north of the City of Indianapolis, in Hamilton County. It, along with the Harbour East Plant, provides water to the Harbour Water Company service area. This plant and the Harbour East Plant are Aeralater Package WTP's manufactured by General Filter, which is owned by U.S. Filter. The Harbour West wellfield is capable of producing an average daily flow of 3.4 MGD through seven wells. The plant has a rated capacity of two MGD, and has a maximum plan output of two MGD. The treatment process includes aeration and filtration. The finished water is stored in a ground storage tank. The

chemicals used in the treatment process include bleach, ammonia, and fluoride. The ammonia is added to produce chloramines for residual chlorine in the collection system. The future of this plant is questionable. Plans are for this facility and the Harbour East Plant to be abandoned, and for the White River North Plant to supply water to the Harbour Water Company service area. The project to eliminate this plant is in the IWCR 5 Year Capital /Work Plan.

The major issues in this facility are summarized in Table 3-8.

Table 3-8 Harbour West Plant*

No.	Description of Issue at the Harbour West Plant	In the IWC 5 Year Capital Plan?
1	Automation improvements	Yes
2	Chemical spill containment	Yes
3	Enhance security	No
4	Repair or replace chemical pump	No
5	Repaint entire plant	No
6	Permanent backup power	No
7	Leaking well	No
8	Leaking tank	No

** If the plant is abandoned immediately, then many of the above improvements are unnecessary.*

Harbour East Plant - The Harbour East Plant was originally constructed in 1992 with an addition in 1998, and is a groundwater treatment plant. The facility is located to the north of the City in Hamilton County. It, along with the Harbour West Plant, provides water to the Harbour Water Company service area. This plant and the Harbour West Plant are Aeralater package water treatment plants manufactured by General Filter. The Harbour East wellfield is capable of producing an average daily flow of 3.9 MGD through three wells. The plant has a rated capacity of 2.8 MGD, and has a maximum plan output of 2.8 MGD. The treatment process includes aeration and filtration. The finished water is stored in a ground storage tank. The chemicals used in the treatment process include bleach, ammonia, and fluoride. The ammonia is added to produce chloramines for residual chlorine in the collection system.

The future of this plant is questionable. Plans are for this facility and the Harbour West Plant to be abandoned, and for the White River North Plant to supply water to the Harbour Water Company service area. The project to eliminate this plant is in the IWCR 5 Year Capital /Work Pan.

The major issues in this facility are summarized in Table 3-9.

Table 3-9 Harbour East Plant*

No.	Description of Issue at the Harbour East Plant	In the IWC 5 Year Capital Plan?
1	Automation improvements	Yes
2	Chemical spill containment	Yes
3	Enhance security	No

4	Repair or replace chemical pump	No
5	Repaint entire plant	No
6	Permanent backup power	No
7	Fix treatment tank for iron breakthrough	No

** If the plant is abandoned immediately, then many of the above improvements are unnecessary.*

White River North Plant - The White River North Plant was constructed in 1991 and it primarily treats surface water. During the period from September 15 to May 15, up to three MGD of groundwater from the Carmel wellfield is also pumped (annually) into the intake wet well. This is done to supplement the surface water supply and to hold the water temperature above 40^0F in winter. The facility is located north of the City in Hamilton County, very close to the Harbour Water Company service area. The source water is the White River. The facility has a design treatment capacity of 24 MGD and the filters have a maximum design capacity of 30 MGD. The average daily flow being treated ranges from 16 to 18 MGD. The facility has treated a peak hourly flow of 28 MGD. The existing treatment facilities include parallel trains of rapid mix, flocculation/sedimentation, and dual media filters and a finished water reservoir. The filter backwash system includes a 300,000 gallon elevated storage tank and a wash water recovery basin. The sludge is discharged to sedimentation lagoons. The wash water is recycled to the influent line of the flow splitter, which is upstream of the rapid mix tanks. The chemicals currently being used in the treatment process include sodium hypochlorite, alum, cationic Cat-Floc-T, sodium bisulfite, caustic soda, hydrofluoricsilicic acid, powdered activated carbon, and aqueous ammonia. The high service pumps are located in the same building as the treatment process. There are five electric pumps and two diesel pumps. The facility has two separate power feeds plus a standby generator, which is capable of supplying power to the chemical feed system, a low lift pump, and one high service pump.

The major issues in this facility are summarized in Table 3-10.

Table 3-10 White River North Plant

No.	Description of Issue at the White River North Plant	In the IWC 5 Year Capital Plan?
1	Additional wellwater and collection piping	Yes
2	Chlorine contact chamber	Yes
3	Raw water pumps	Yes
4	Expand plant	Yes
5	Chemical containment in unloading area	Yes
6	Install dechlorination feed to basin	Yes
7	Interconnect and supply Harbour West area	Yes
8	Rehabilitate or construct new raw water screen bldg.	No
9	Detailed evaluation of sludge lagoon	No
10	Enhance security	No
11	Chemical piping modifications	No
12	Emergency shower	No
13	Taste and odor issues	No
14	Automation improvements	No

Ford Road Plant - The Ford Road Plant was constructed in 1997 and is a groundwater treatment plant. The facility is located in the northwest section of the IWCR service area, just inside Boone County near Zionsville. The facility has a rated capacity of 2.6 MGD with a maximum output of 2.6 MGD. The wellfield can provide 2.6 MGD. The existing treatment facilities include aeration, pressure sand filters, and ground storage tanks. The filter backwash system uses finished water for backwashing. The wash water is discharged to a lagoon. The chemicals used at the facility include sodium hypochlorite, anhydrous ammonia, and fluoride. Currently, the facility is treating one MGD on an average day and up to 1.5 MGD on a peak day. The Ford Road Plant in conjunction with the T.W. Moses Station supplies water to this northwest service area. The northwest service area is IWCR's weakest service area; it is a high growth area, but there are not enough sources of water. (Note: This same type of plant configuration is used at the Harding Station and Geist Station.)

The major issues in this facility are summarized in Table 3-11.

Table 3-11 Ford Road Plant

No.	Description of Issue at the Ford Road Plant	In the IWC 5 Year Capital Plan?
1	Second ground storage tank	Yes
2	Chemical conversion	Yes
3	Enhance security	No
4	Detailed evaluation of sludge lagoon	No
5	Automation upgrade	No
6	Additional wells and collection lines	No
7	Chemical piping modifications	No

Darlington - The Darlington Water Works Company is a relatively small water system, serving approximately 300 customers in the Town of Darlington, Montgomery County, northwest of Indianapolis. The facilities include three wells, two in concrete masonry well houses and one outdoor well pump. The wellfield is capable of providing 0.10 MGD. Solution feed equipment for chlorination and flouridation are housed in the well houses, one system in each housing. It also has a 50,000 gallon elevated storage tank on the system. The distribution system is of small diameter, the largest pipe loop being a four inch pipe; distribution systems that provide fire protection are normally six inches and larger. One unique feature of this system is that the fire hydrants are owned by the Town of Darlington. The fire hydrants are of a small profile with the smallest having only a one-hose connection, as compared to current-day hydrants that have a pumper connection and two hose connections. Fire protection capability is limited by pipe size and small hydrants. The system includes a small pit style booster pumping station that serves 12 customers. The single booster pump is in continuous operation. In the event of a power failure, this part of the system reverts to the normal system pressure provided by the elevated tank.

The major issues in this facility are summarized in Table 3-12.

Table 3-12 Darlington Plant

No.	Description of Issue at Darlington	In the IWC 5 Year Capital Plan?
1	Chemical conversion	Yes
2	New source of supply	Yes

Liberty - The Liberty Plant, located about four miles west of Plainfield, on the south side of US 40, is similar to the Harbour West and Harbour East Plants. There are approximately 70 customers served by the system. It uses the same Aeralater aeration, storage, and filter unit for treating groundwater. The wellfield, consisting of two 600 gpm wells is capable of delivering 0.86 MGD. There are two 300 gpm high service pumps that pump the water from an 80,000 gallon ground storage tank. Chlorine is the only chemical used at this facility. Due to the limited number of customers, a bleeder is used to keep the water in the distribution system fresh. The local golf course has recently entered into a contract with IWCR to take the bleeder water that would normally be wasted. Backwash water from the filters is discharged in a treatment lagoon that discharges to an unnamed tributary of the West Fork of White Lick Creek. The discharge does have an NPDES permit.

The major issues in this facility are summarized in Table 3-13.

Table 3-13 Liberty Plant

No.	Description of Issue at Liberty	In the IWC 5 Year Capital Plan?
1	Chemical conversion	Yes
2	Contact chamber	Yes
3	Install elevated tank	Yes

Irishman's Run Wastewater Treatment Plant - Irishman's Run Farm Utility built in 1994, is wastewater treatment facility that serves two subdivisions in the southeast corner of Boone County. These two subdivisions contain approximately 175 homes with equivalent population of 525 people. Approximately 4,000 lineal feet of gravity sanitary sewer collects the wastewater generated in the service area. Each home has grinder pump unit that delivers the wastewater from the home to the sewer.

The plant is located immediately north of I-465 and west of Ford Road, on the east side of Irishman's Run Creek. The sequencing batch reactor plant is unique in that it is housed in a pole type building approximately 60' x 100'. The building is a medium brown color with a row of pine trees providing a visual screen. The building is visible from I-465.

The plant has a rated capacity of 61,250 gpd treating typical domestic wastewater. The plant is a factory built unit; Model PST-42 manufactured by Purestream. The plant has two reactor basins that operate on a 12 hour cycle. Plant effluent quality consistently meets NPDES effluent limits.

The plant is built with a floor elevation of 823.5. This is two feet above the 100 year flood elevation of Irishman's Run Creek of 821.5

The plant is properly operated and well maintained. This is easily determined as the are no obnoxious odors within the building. An improperly operated and maintained plant would exhibit significant bad odors.

Ellis Environmental provides laboratory analysis and the services of a certified operator to oversee plant operations. Sludge is hauled to the Belmont WWTP for disposal. The volume of sludge is approximately 3,000 gallons per month.

There are few deficiencies identified: a roof that has significant water damage (condensation) and slightly undersized filters. The Company's attention to appropriate cycling has mitigated the filter deficiency. The need for security fencing may be considered mute, because the plant is housed in a building and the building has a security system that detects unauthorized entry. One minor item is the partial blockage of the site drain line outlet to the Creek. There are no planned items in the IWCR 5 Year Capital /Work Plan.

The major issues in this facility are summarized in Table 3-4.

Table 3-14 Irishman's Run Wastewater Treatment Plant

No.	Description of Issue at Irishman's Run WWTP	In the Five-Year Capital Plan?
1	Repair of building roof	No
2	Repair of yard drain pipe outlet	No
3	Undersized Filters	No

DISTRIBUTION SYSTEM OVERVIEW

The IWC, IWC Morgan Water Company, Liberty Water Company, Harbour Water Company and the Darlington Water Company systems contain approximately:

- 4,000 miles of water main.
- 32,000 valves.
- 30,000 fire hydrants.
- 15 water storage tanks.
- 19 water pumping stations, 18 in operation.

These figures do not include those facilities located within the premises of the water treatment plants.

Within the IWCR Waterworks, there are 15 districts and four sub-districts. A district and sub-district is a part of the Waterworks that is defined by the pressures within the area and is typically isolated from the remainder of the Waterworks by one or more pressure reducing valves (PRVs), bleeder valves and pump stations. The Harbour system is comprised of three districts while the Liberty, Darlington and IWC Morgan systems each contain only one district.

Districts and Service Areas

The following paragraphs describe items of note for each district in the IWCR Waterworks and each of the service areas:

Castleton District - The Castleton District is located in the northeast quadrant of Marion County and includes portions of Hamilton County and Hancock County. There are almost 25,000 services within the district. The following are items of note within the district:

- The Castleton District is experiencing high growth to its north, northeast and east. The IWCR 5 Year Capital /Work Plan provides for the construction of a new elevated water storage tank in the district.

- At least three areas in the system are not looped. Should a main break occur, a significant service area could be without water until the break is fixed. These include service areas extending from the following locations to the extremities of their respective service areas: Bay Point Way and Old Stone Drive intersection; 600 N and 600 W intersection; and Brooks School Road and 116th Street intersection. The IWCR 5 Year Capital / Work Plan only provides for looping of the system from Bay Point Way and Old Stone Drive.

- Should an emergency power outage occur at the White River North Plant, the ability of the district to meet its water demands would be compromised.

Fairwood Sub-District - The Fairwood District is located immediately southeast of the intersection of I-465 and Allisonville Road. There are approximately 1,600 services in the sub-district. An item of note for the Fairwood Sub-District: only one water main feed to it from the Castleton District. Should a main break occur along the connecting pipe, this area would be without water until this connection is re-established. There are no redundant sources of supply to the sub-district.

Meridian Hills District - The Meridian Hills District is located in the north central portion of Marion County and includes portions of Hamilton County and the City of Carmel. There are approximately 13,000 services in the district. The following are items of note within the district:

- The Meridian Hills District serves as an important link to provide water to the northwest portion of the service area from the northeast portion of the service area. The 107th Street Pump Station, located in the district, moves the water through the district to the Lafayette District. This station experiences low suction pressures. The low suction pressures are due to the limiting capacity of the suction piping in the district. The IWCR 5 Year Capital / Work Pan provides for the installation of parallel mains to provide a second feed to the pump station which will help improve the suction pressures and increase the flow of water to the Lafayette District.

- In the event of an outage at the White River North Pant or loss of the White River North (West) Bleeder, the ability of the Meridian Hills district to meet its demands could be compromised. The Lafayette District, Zionsville District and Boone County Utilities would also be compromised.

Lafayette District - The Lafayette District is located in the northwest portion of Marion County and includes portions of Boone, Hamilton and Hendricks Counties. The number of services in the district was not provided. The following are items of note within the district:

- The Lafayette District cannot support much more growth until additional supply of water to the district can occur. In order to help meet future and existing demands, the IWCR 5 Year Capital / Work Plan provides for: 1) the construction of reinforcing piping to the 107th Street Pump Station to increase suction pressures and discharge capacity to the Lafayette District; 2) the replacement of the small pump in the 107th Street Pump Station with a larger pump (no funds are budgeted yet); and 3) the construction of an express water main from the White River North Water Treatment Plant to the Zionsville District (Zionsville is supported by the Lafayette District).

- At least three areas in the system are not looped. Should a main break occur, a significant service area could be without water until the break is fixed. These include service areas extending from the following locations to the extremities of their respective service areas: S.R. 334 and Bentley Drive intersection; 71st Street and Lafayette Road intersection; and 56th Street and Dandy Trail intersection. The IWCR 5 Year Capital / Work Plan does not provide for the looping of these areas into the distribution system.

- Should the 107th Street Pump Station be lost due to a power outage, the demands in the district could likely be sustained, however, the Zionsville District and Boone County Utilities could be compromised.

- Should the T.W. Moses Plant be lost due to a power outage, the demands within the Lafayette District, Zionsville District and Boone County Utilities would be compromised.

Flackville District - The Flackville District is located northwest of downtown and is entirely within Marion County. There are approximately 14,400 services in the district. The following are items of note within the district:

- A portion of the water main which transmits water to the Flackville District from the T.W. Moses Plant has restrictions due to varying pipe sizes. The IWCR 5 Year Capital /Work Plan provides for the installation of a parallel 24-inch diameter water main to the existing 16-inch water main through the restricted portion.

- Should the Flackville Bleeder or the 65th & Guion pressure reducing valve be lost, it is likely that the district water demands could not be sustained.

Northeast District - The Northeast District is located northeast and east of downtown Indianapolis and is entirely within Marion County. There are approximately 63,000 services in the district. An item of note is that should the Fall Creek Station be lost due to an outage, the ability of the Northeast, Meridian Hills, Castleton and Cumberland districts to meet water demands could be compromised.

Central District - The Central District is located in the downtown area and is entirely within Marion County. There are approximately 25,000 services in the district. The following are items of note within the district:

- The distribution piping throughout the majority of the Central District is old and cannot withstand high pressures. Several items of concern result from the condition of the piping. First, water main infrastructure improvements are required for redevelopment projects. Second, the Madison pump station cannot supply the Central District with a redundant supply of water in the event of an emergency situation. The IWCR personnel feel that the piping cannot handle the pressures from the Madison station. The existing pumps at the Riverside station (the Central District's main feed) are limited to 80 psi discharge pressures.

- Should an outage occur at the White River Plant or the Riverside pump, water demands in the Central District would not be able to be sustained.

Ben Davis District - The Ben Davis District is located in the west central portion of Marion County. There are approximately 23,000 services in the district. The following are items of note within the district:

- The Raymond Street Pump Station experiences low suction pressures and is not operating at its maximum efficiency. Per the IWCR personnel, a remote control division valve needs to be repaired in order to improve the pressures. The IWCR 5 Year Capital /Work Plan does not account for this work.

- A restriction in water main size leading to the suction side of the Bridgeport Pump Station exists. The IWCR 5 Year Capital / Work Plan calls for the installation of a 24-inch water main to parallel an existing 16-inch water main on the suction side of Bridgeport. This should improve the efficiency of the station. The project is identified in the current IWCR 5 Year Capital /Work Plan, however, no funds are budgeted.

- Should the Ben Davis Bleeder become inoperable, the Ben Davis District does not appear to be capable of sustaining the required water demands.

Southport District, Harding Sub-District and Manual Sub-District - The Southport District is located in the south central portion of Marion County. The Harding Sub-District and Manual

Sub-District are located within the Southport District. There are approximately 26,000 services in the Southport district. The following are items of note within the district:

- At least one area in the system is not looped. Should a main break occur, a significant service area could be without water until the break is fixed. The area includes the service area extending from the Hanna Avenue and Meridian Street intersection.

- Should an outage occur at the Madison Station, the district would be required to rely on the Beech Grove Tank. This would not be sufficient for the district.

Cumberland District - The Cumberland District is located in the east central portion of Marion County and also includes a portion of west Hancock County. There are approximately 24,000 services in the district. The following are items of note within the district:

- A significant amount of development is occurring east of the Cumberland District. In order for the IWCR to continue servicing this growth, the IWCR budgeted money in their 5 Year Capital / Work Plan for the construction of an elevated storage tank in the New Palestine area.

- Per the IWCR, the Arlington Pump Station is in need of rehabilitation. Rehabilitation of the station would improve its reliability, efficiency and capacity to serve the Cumberland District. This project is partially budgeted in the IWCR's 5 Year Capital / Work Plan.

- At least three areas in the system are not looped. Should a main break occur, a significant service area could be without water until the break is fixed. These include service areas extending from the following locations to the extremities of their respective service areas: Prospect Street and German Church Road intersection; Rawles Avenue and Post Road intersection; and English Avenue and Franklin Road intersection.

- Should the Edmondson Station be lost due to an outage, the Arlington station alone could not meet the demands of the Cumberland District.

Southeast District - The Southeast District is located in the southeast portion of Marion County. There are approximately 8,000 services in the district. An item of note within the district is that should the Stop 11 pump station be lost due to an outage, the Southeast District could not support the demands of the district as Stop 11 is the only source of water to the district.

Southwest District - The Southwest District is located in the southwest portion of Marion County and portions of Hendricks County and Morgan County. There are approximately 6,800 services in the district. The following are items of note within the district:

- At least one area in the system is not looped. Should a main break occur, a significant service area could be without water until the break is fixed. The area

includes the service area extending from the Mooresville Road and Hayworth Road intersection.

- Should the South Wellfield Plant be lost due to an outage, the Ben Davis District and the Southeast Districts would not be able to supply the water demands within their districts.

Avon District - The Avon District is located in east Hendricks County and portions of west Marion County, immediately west of downtown Indianapolis. There are approximately 5,300 services in the district. The following are items of note within the district:

- The Avon system is growing to the west. Many areas are fed by only one main, which is located along US 36. This results in several sections in the District which are not looped with the system. The Avon system also feeds the Northwest District, Brownsburg and Pittsboro. Should a water main break occur, large areas would be without water. The IWCR plans to build new water mains to provide some loops to the system.

- Should the Raymond Station be lost due to an outage, the Avon District and the Northwest District may not be able to meet the water demands of the districts.

Northwest District - The Northwest District is located north of 300 North in Hendricks County and west of 800 East. There are approximately 57 services in the district. The following are items of note:

- The distribution system in the Northwest is not looped. Should a main break occur along this line, Pittsboro would be required to operate off of their storage tank.

- Should the 300 North pump station fail, the Northwest District would operate solely on the 300 North tank. The ability of the Northwest District, Pittsboro and Brownsburg to meet the water demands could be compromised.

Zionsville District - Zionsville is located northwest of Indianapolis in Boone County. There are approximately 2,200 services in the district. The following are items of note within the district:

- Additional development in the Zionsville District will be difficult to serve. Several projects are proposed in the IWCR 5 Year Capital / Work Plan to increase the ability of the IWCR Waterworks to service future growth.

- Should the Zionsville Bleeder become inoperable, the only source of water into the Zionsville District would be from its elevated storage tank. This would result in the inability of the District to support its water demands.

IWC Morgan Water Company - The IWC Morgan Water Company is located in eastern Morgan County and covers a large geographic area, however, there are relatively few services in the system. The following are items of note within the service area:

- The system is not sized accordingly to provide fire flow protection. Upgrades and reinforcing mains need to be constructed system wide in order to provide fire flow protection.

- Much of the system is not looped. Should a main break occur at one point along the main north / south branch, the system would be required to rely on their elevated storage.

Liberty Water Company - The Liberty Water Company is located immediately west of Plainfield and is a stand alone water system. There are approximately 70 services in the system. There are no significant items of note within the system.

Harbour Water Company - The Harbour Water Company system is located west of Noblesville. There are approximately 3,000 services in the district. The following are items of note within the service area:

- Many of the water mains in the cul-de-sacs are two inches in diameter and deteriorating. Replacement of these lines is budgeted in the IWCR 5 Year Capital / Work Plan.

- Other concerns are with the ability to loop the system. As the system surrounds a reservoir and is surrounded by other water utilities, it is difficult to loop the system.

Darlington Water Company - The Darlington Water Company service area is located northeast of Crawfordsville. It is a stand alone system that serves approximately 300 customers. The following are items of note within the service area:

- The water system was constructed in the 1940s. The main loop in the system is four inches in diameter. The IWCR's 5 Year Capital / Work Plan includes an item to upgrade the loop to six and eight inch water mains.

- Per the IWCR, the system is relatively low in pressure. The IWCR plans to install a new water storage tank and / or booster station to boost pressures in the system, however, no funds have been budgeted for this item.

- Presently, the system cannot support fire flows. It is interesting to note that the Town of Darlington owns the fire hydrants throughout the system.

Water Storage Tanks on the Distribution System

There are ten finished water storage tanks on the IWCR distribution system as follows:

- Edmondson
- Zionsville
- St. Vincent
- Madison

- Beech Grove
- 300 North
- Riverside #1
- Bunker Hill
- Clermont
- Riverside #2

There are two tanks in the IWC Morgan service area that include the New Harmony Stand Pipe and the Conservation Club Road Elevated Tank. The Harbour service area has two finished water storage tanks including the Harbour Trees Elevated Tank and a ground storage tank upstream of the Harbour Booster Station. Darlington has one elevated storage tank. Liberty does not have a storage tank on the system with the exception of the one located at the water treatment plant.

Each tank in the IWC Waterworks, with the exception of the Riverside tanks and the Edmondson tank, have been completely repainted or constructed within the past ten years. The Riverside tanks are buried concrete tanks which require no painting. The interior of the Edmondson tank was repainted in 1996. However, the exterior of the tank was repainted in 1986. Annual evaluations should be made regarding the repainting of the exterior of the Edmondson tank. Each tank is inspected and washed on a two year cycle.

Each tank in the Harbour and IWC Morgan systems has been completely repainted or was constructed within the past ten years. The Darlington tank was constructed in the 1940's. The IWCR does not have any data regarding the repainting of the tank. It is conceivable that the Darlington tank may contain lead based paint beneath the grease coating.

The following is a summary of each tank and items of note regarding each tank:

Edmondson Tank -The Edmonson tank is a 4,000,000 gallon welded steel ground storage tank and is essential to the operation of the Cumberland District. The item of note regarding the tank is that the exterior of the tank may require painting in the next five years.

St. Vincent Tank - The St. Vincent tank is a 2,000,000 gallon welded steel elevated storage tank and is essential to the operations of the Lafayette District. There are no items of note regarding this tank.

Zionsville Tank - The Zionsville tank is a 400,000 gallon welded steel elevated storage tank and is essential to the operations of the Zionsville District. There are no items of note regarding this tank.

Madison Tank - The Madison tank is an 8,000,000 gallon welded steel ground storage tank that is essential to the operations of the Southport District. There are no items of note regarding this tank.

Beech Grove Tank - The Beech Grove tank is a 2,000,000 gallon welded elevated storage tank that is essential to the operations of the Southport District. There are no items of note regarding this tank.

Bunker Hill Tank - The Bunker Hill tank is a 1,000,000 gallon fluted pedestal storage tank that is essential to the operations of the Southeast District. There are no items of note regarding this tank.

300 North Tank - The 300 North tank is a 1,000,000 gallon fluted pedestal storage tank that is essential to the operations of the Northwest District. There are no major items of note regarding this tank, however, several items outlined in the one year anniversary inspection reports have not been completed for this tank. Additionally, communications to this facility are interrupted frequently. This facility may be a good candidate for radio communications.

Clermont Tank - The Clermont tank is a 60,000 gallon welded steel elevated storage tank which is no longer in use. The tank has been abandoned in place. Presently there are no plans by the IWCR to demolish the tank.

Riverside #1 (5.5 MG) - This tank is an underground concrete tank built in 1907. While no maintenance or rehabilitation data was provided for this tank, the top slab of the reservoir has cracks in it which allow rainwater to enter into the reservoir. IWCR's 5 Year Capital / Work Plan provides for the covering of this reservoir with an impermeable membrane to keep the rainwater from entering the tank.

Riverside #2 (10 MG) - This tank is an underground concrete tank built in 1922. According to IWCR, a protective membrane was recently constructed over the concrete tank.

New Harmony Tank - The New Harmony storage reservoir is a 250,000 gallon standpipe constructed in 1995. This tank is essential to the operation of the IWC Morgan system. There are no items of note regarding this tank.

Conservation Club Road Tank - The Conservation Club Road tank is a 250,000 gallon elevated steel storage tank constructed in 1995. It is essential to the operation of the IWC Morgan system. There are no items of note regarding this tank.

Harbour Booster Ground Storage Tank - The Harbour Booster Ground Storage tank is a 350,000 gallon steel ground storage tank constructed in 1994. It is essential to the operation of the Harbour Water Company. There are no items of note regarding this tank.

Harbour Trees Elevated Tank - The Harbour Trees Elevated tank is a 250,000 gallon multi-legged elevated welded steel storage tank constructed in 1974. It is essential to the operation of the Harbour Water Company. There are no items of note regarding this tank.

Darlington Water Tank - The Darlington Water tank is a riveted steel elevated tank which has a volume of 50,000 gallons. It was constructed in 1940 and is essential to the operations of the Darlington Water Company. Although not a significant issue, IWCR believes the existing grease coated internal paint system to be the original and that the underlying internal paint system may contain lead.

Total Waterworks Water Storage

Including the two contact basins at the White River and the White River North treatment plants, the IWCR Waterworks has 76,800,000 gallons of water storage. This is approximately 50 percent of the average daily demand in the IWCR Waterworks. Some districts do not have any storage and according to the IWCR, movement of water from one district to another is generally not a problem. Several districts effectively rely on a portion of the storage contained in another district. The IWCR uses this storage as a buffer to help operations to control the pump stations. The storage is intended to supply fire flow and peak hour flow to smooth out the pumping operations. IWCR personnel believe this storage is sufficient.

The IWC Morgan system contains 500,000 gallons of storage while the year 2000 average day demand for the district is 550,000 gallons. This service area supplies approximately 90 percent of the average daily demand in storage. The year 2000 average day demand for the Liberty System was 150,000 gallons. The Liberty system provides 80,000 gallons of storage (approximately 50 percent of the average daily flow). The year 2000 average day demand for the Harbour Water Company was 1,680,000 gallons. The Harbour system provides 810,000 gallons of storage in the system (approximately 50 percent of the average daily flow). The year 2000 average day demand for the Darlington Water Company was slightly over 5,000 gallons. The Darlington Water Company provides 50,000 gallons of storage in the system.

Pump Stations on the Distribution System

There are nineteen (19) water pump stations within the IWCR Waterworks excluding the twelve (12) high service pump stations at the water treatment plants. Of these, 14 are within Marion County as follows:

- Illinois
- 107th Street
- Arlington
- Madison
- Stop 11
- Raymond
- Rockville
- College
- Allisonville
- Edmondson
- Bunkerhill (not in use)
- 300 North
- Bridgeport
- Riverside

Of these 14 pump stations, 13 are presently in use in the distribution system.

There are five (5) water pump stations in the Harbor, Morgan and Darlington service areas as follows:

- Harbour Booster Station
- Nast Chapel Booster Station
- Darlington Booster Station
- Mill Creek Booster Station
- New Harmony Booster Station

The following is a summary of each pump station and items of note regarding each pump station:

Illinois Pump Station - The Illinois Pump Station serves the Meridian Hills District and draws water from the Northeast District. The Illinois Pump Station includes four pumps, all of which are operational according to IWCR. According to IWCR, any number of pumps can operate at a time, however, the maximum rated output for the station is 7.4 MGD. The pump station has not been renovated since its installation in 1986. The item of note in regards to this pump station is that there are no alternate operational modes in case of a power outage. The IWCR 5 Year Capital / Work Plan does provide for the installation of emergency generation at the pump station.

College Avenue Pump Station - The College Avenue Pump Station serves the Meridian Hills pressure district and draws water from the Northeast pressure district. The station consists of three pumps, all of which are operational. According to IWCR, any number of pumps can operate at a time. However, the maximum output rate is five MGD. During a power outage, the gas powered pump can meet the maximum capacity of the station of five MGD. There are no major items of note regarding this station.

107th Street Pump Station - The 107th Pump Station serves the Lafayette Pressure District. The source of water is from the Meridian Hills district. The station consists of four pumps, all of which are operational.

According to IWCR, any number of pumps can operate at a time, however, caution is required since the suction pressures have been known to be low (35 psi). The maximum output rate for the station is five MGD. Another item of note regarding this station is that there are no alternate operational modes in case of a power outage at the 107th Street Pump Station.

Allisonville Pump Station - This pump station serves the Castleton Pressure District. The source of water is from the Northeast Pressure District. The station consists of five pumps, all of which are operational. According to IWCR, any number of pumps can operate at a time. However, the maximum output for this station is 15.8 MGD. During a power outage the station can only pump 5.7 MGD with the gas driven pump. There are no major items of note regarding this pump station.

Arlington Pump Station - This pump station serves the Cumberland pressure district and draws water from the Northeast pressure district. The station consists of four pumps, all of which are operational and according to IWCR, are original. According to IWCR, any number of pumps can operate at a time. However, the maximum output rate of the station is 12.5 MGD. During a power outage the station can only pump 5.8 MGD with the gas driven pump. A major item of note is that the IWCR plans to rehabilitate the pump station to improve its efficiency and reliability. Work needs to be done on the pumps, piping, electrical, building and exterior valves. The project is included in the IWCR 5 Year Capital Plan.

Edmondson Pump Station - The Edmondson Pump Station pumps water from the Edmondson Storage Tank and / or the Northeast District into the Cumberland District. The station consists of five pumps, all of which are operational and original. According to the IWCR, any number of pumps can operate at a time. However, the maximum output rate of the station is 18 MGD. During a power outage the station can only pump 13.4 MGD with the diesel driven pump. An

item of note is that the starters can pose problems due to high heat buildup in the pump station. In the past, this was remedied with the installation of temporary fans to cool the starters, however, regulations now prohibit this practice. At present, IWCR does not have a solution to this problem.

Madison Street Pump Station - This pump station serves the Southport District and is fed by the Central District. Per IWCR the Madison Pump Station is the second largest booster station in the system. The pump station consists of six pumps, all of which are operational. The pump station has a dual electric feed and two pumps which run on natural gas. The maximum output rate of the station is 28.0 MGD. An item of note is that parts for the natural gas units are hard to find. New parts typically have to be machined.

Bunker Hill Pump Station - This pump station is a package unit and is not presently in use. If it was operating, its capacity would be approximately 1000 gpm. According to IWCR, the package unit can be moved to a new location as the distribution system grows and the need for a new pressure district becomes necessary or additional supply is needed in an existing district. However, there are no definite plans for its use.

Stop 11 Pump Station - The Stop 11 pump station serves the Southeast District. It is fed by the Southwest District. The pump station is the only source of water for the Southeast District. The station has three pumps including two electrically driven and one diesel driven pump. According to the IWCR the pumps are all fully operational. The station has a capacity of 12.5 MGD but has a maximum plant output of eight MGD. During a power outage the station is dependent on the diesel engine driven pump with a capacity of five MGD. An item of note is the controls for pump number 2 kicks out every so often and IWCR has to send someone out to reset them. The IWCR does not have a solution to this problem and there is no money budgeted in the IWCR 5 Year Capital Plan to address this problem.

Raymond Street Pump Station - The Raymond Street Pump Station generally supplies water from the Ben Davis District to the Avon District. The station consists of three pumps that are all operational. Two of the pumps are driven off electric motors and one is a diesel driven engine. According to IWCR, any number of pumps can operate at a time. However, the maximum output rate of the station is three MGD. During a power outage the station can pump three MGD with the diesel driven pump. There are no major items of note in regards to this pump station.

Bridgeport Pump Station - The Bridgeport Pump Station serves the Avon District with water from the Ben Davis District. The station consists of four pumps that are all operational. The maximum plant output is 3.4 MGD. An item of note is the station does not have a backup power source in the event that there is a power outage. Per the IWCR, installation of backup generation on the site will require special consideration as the station is surrounded by floodplain.

Rockville Pump Station - The Rockville Pump Station serves the Ben Davis District by pumping water from the Central District. The station consists of four pumps that are all operational. All four of the pumps run off electric motors, there is no backup power for the station. According to the IWCR, any number of pumps can operate at a time. However, the maximum output rate of the station is seven MGD. An item of note is that the pump station

building roof was leaking. Another item of concern is that the pump station does not have a backup system in the event of a power outage.

Riverside Pump Station - The Riverside Pump Station serves the Central District directly. Its source water is from the White River Treatment plant. The pump station pumps directly from one of two ground storage reservoirs on site. There are five pumps at the Riverside Pump Station. The maximum output rate for the station is 50 MGD. The pump station has a dual electric feed. Several items of note include:

- Two of the four operational pumps operate during most conditions. The IWCR does not operate more than two pumps at a time since the discharge pressures resulting from the operation of three pumps would cause failure in the distribution lines immediately downstream of the pump station. According to the IWCR, this pressure is approximately 80 psi.

- The pumps are primed with a vacuum operated priming system, which has a battery backup power supply. Per the IWCR, this system has had problems in the past and the pumps had to be primed via manual operation of the valves.

- Per the IWCR, the electrical controls are old and should be replaced in the future. As of now, they operate adequately.

- According to the IWCR, the Riverside Pumping Station, as well as most stations, contain some asbestos insulation.

- The steam boiler and related piping are still in place and most likely will need to be removed during a station renovation.

300 North Pump Station - The 300 North Pump Station serves the Northwest District and is critical to the Pittsboro water supply operation. Its source is the Avon District. The maximum output rate of the station is two MGD. An item of note in regards to this pump station is interruption in telephone and electrical power occur often and when the power is transferred back, the Variable Frequency Drive (VFD) sometimes locks out for unknown reasons. A more detailed investigation shall be performed by the Company to identify the cause of the problem and determine a solution.

Harbour Booster Station (Little Chicago Road Booster Station) - This station consists of two 0.85 MG pumps. The pump station serves the South Zone in the Harbour System. The IWCR stated that the pump station was in good condition.

Mill Creek Booster Station (Carrigan Road Station) - This station consists of a one MGD pump. The station serves the North Zone in the Harbour System. The IWCR stated that the pump station is in good condition.

Nast Chapel Booster Station and New Harmony Booster Station - Each of these pump stations serve the IWC Morgan system. According to the IWCR, each pump station is in good condition. These systems were constructed in the 1990s.

Darlington Booster Station - This pump station is underground in a vault and has one 300 gpm pump serving 12 services. The IWCR noted that in the future, a new booster station and / or tank may be required for the Darlington system. No schedule has been placed for this project, nor is it identified in IWCR's 5 Year Capital / Work Plan.

SOURCE WATER SUPPLY

The average daily production of finish water is approximately 140 MGD with a peak day of 201 MGD, which occurred in August, 2001. Approximately 20 percent of the source water is from groundwater sources. The remainder, approximately 80 percent of the average daily production, is supplied from surface water sources.

Surface Water Supply - As mentioned previously, the IWCR Waterworks receives approximately 80 percent of its water supply from the surface water drainage features that includes the three major water supply reservoirs. An evaluation of the surface water supply was conducted in 1985 by Black and Veatch, which did not highlight any deficiencies in the supply. Since that time, increased demands and new facilities have been added to the Waterworks. Additionally, because the water comes from so many different sources, the distribution of water has become much more important to this Waterworks.

The Morse and Geist Dams appear to meet the Indiana Department of Natural Resources (DNR) safety requirements. There does not appear to be any obvious deficiencies with either structure that would warrant significant remedial repairs. Continued maintenance and inspection of the facilities shall be performed to keep the dam and appurtenances in safe operating conditions.

The Waterworks also consists of four low head dams; one on the White River, two on Fall Creek and one on Williams Creek. The DNR does not regulate the subject dams due to their low heights. There does not appear to be any significant issues concerning the integrity of these low head dams. However, there are some repair items to be addressed at the Broad Ripple Dam as well as additional investigations into the source of noted seepage near and under the west abutment area. There are minor repairs needed on the ends of the Fall Creek diversion channel dam upstream of the Keystone Dam. Continued maintenance of the facilities shall be performed by the Company to keep the dam and appurtenances in safe operating conditions.

The canal from the White River to the White River WTP headworks provides the largest single source of supply water to the Waterworks. Therefore, the canal is critical to the overall operation of the Waterworks. Monitoring of the canal's diking system shall be continued. A thorough inspection of the dikes shall be conducted at a time when the toe of the slope is accessible for visual inspection. A survey of the canal dikes using ground penetrating radar shall be performed by the Company if not already completed as of the date of this transition. The thorough inspection of the dikes would supplement the radar survey. Because of its importance, a more

detailed contingency plan addressing an alternate for the occurrence when surface water cannot be delivered to the White River WTP via the canal shall be developed by the Company as part of the emergency plan update.

Groundwater - IWCR and its subsidiary water companies operate eight wellfields as part of the water supply to their customers. These wellfields and their corresponding treatment plants are listed below:

	WELLFIELDS	**PLANTS**
●	Riverside/White River Wellfield	White River Plant*
●	Fall Creek Wellfield	Fall Creek Plant*
●	South Wellfield	South Wellfield and Harding Road Stations
●	Geist Wellfield	Geist Station
●	Ford Road Wellfield	Ford Road Plant
●	Harbour Wellfield	Harbour East and West Stations
●	Liberty Wellfield	Liberty Plant
●	Darlington Wellfield	Darlington Plant

** Signifies plants that treat surface water and groundwater. Remaining plants treat groundwater only.*

Combined, these wellfields can supply up to approximately 40 percent of the water handled by IWCR, or about 60 MGD. The number of wells presently utilized by IWC are listed below:

Wellfield	**No. Wells**	**Maximum Yield**
Riverside/White River	14	14.40 MGD
White River	5	8.71 MGD
Fall Creek	8	11.23 MGD
South	11	24.05 MGD
Geist	3	6.05 MGD
Ford Road	4	2.59 MGD
Harbour East	East 3	3.89 MGD
Harbour West	West 5	3.46 MGD
Liberty	2	1.73 MGD
Darlington	3	0.76 MGD
Totals	**58**	**76.87 MGD**

The majority of the wells utilized by IWCR are located on property where IWCR owns the water rights. Part of the agreement with the owners stipulates that certain practices which could potentially cause contamination of the water supply are prohibited. These include storage and management of chemicals and other harmful substances. This mechanism of controlling activities within a 100 to 200 foot radius of the actual wellhead has been approved by the Indiana Department of Environmental Management (IDEM). In the remaining cases, the wells are located on property which is owned by IWCR, such as the White River WTP and are subject to IDEM regulations.

IWCR had prepared Wellhead Protection Plans (WHPP's) for their wellfields which are required by Indiana regulations. The WHPP's for the wellfields at Liberty and Darlington are currently being prepared and were not available for review. These plans are to be submitted to IDEM March 28, 2002. The WHPP's plans for the remainder have been submitted to IDEM as required and are discussed below.

A separate plan for Riverside/White River, Fall Creek, South and Geist wellfields was prepared in conjunction with the acquisition of Lawrence Water Company (LWC) and is hereinafter referred to as the IWCR/LWC plan. The LWC wellfield and the Geist wellfield were treated as a single wellfield due to the proximity of the wells, and to their withdrawal from the same aquifer. A second WHPP was prepared later for the Ford Road Wellfield. The IWCR/LWC plan only pertains to the Geist wellfield. A third WHPP has been prepared for the Harbour wellfield.

IDEM has initiated its review of the plans and has issued approvals for the wellhead delineations for Riverside/White River, Fall Creek, South, Geist and Ford Road wellfields. The delineation for the Harbour wellfield has not yet been approved. No WHPP has been approved for IWCR as of September 28, 2001.

IDEM has, however, issued comments on comments on the IWCR/LWC plan and the Ford Road plan, to which IWCR has responded. Based upon discussions with IWCR staff and IDEM, as soon as IWCR revises the plans in question, approval will be forthcoming from IDEM. The Harbour WHPP is currently under review by IDEM. When the various plans have been approved by IDEM. It is the intent of IWCR to combine all plans into a single document for ease of distribution and use.

The outline from Indiana's required plan content list is as outlined below:

Contents of a Phase I WHPP Submittal:

- List of Local Planning Team (LPT) members, and their affiliation.
- Delineation report, including all technical discussions.
- Inventory of potential sources of contamination.
- Management strategy for sources of contamination.
- Contingency plan.
- Description of public participation.
- Description of public education program.

Each plan prepared for IWCR followed the same format and provided the information as discussed below.

Local Planning Team - Each plan provided the most current list of planning team members and their affiliation.

Delineation Reports - Each delineation report is a reasonable determination of the area within which IWCR can exercise protective measures to the groundwater sources. In some cases, it was

noted that certain information as required by the regulations had not been provided, but was deemed not to have any significant effect on the delineation of the wellhead protection area. As previously stated, IDEM has approved the delineation reports for the IWCR/LWC and Ford Road wellfields. IDEM has also approved use of a fixed radius (3000 feet) delineation approach for the Darlington wellfield. The delineations for Harbour and Liberty have not yet been approved.

Inventory of Potential Sources of Contamination - It appears that appropriate procedures were used in arriving at a reasonable determination of the presence of facilities, which potentially could pose a threat to the groundwaters in the wellhead protection areas. In preparing the inventory, the following procedures were used:

1. A database was purchased from a vendor (Vista). This database is a search of State and Federal lists of all regulated and unregulated facilities which could pose a threat to the environment.

2. Conducted a review of Marion County Health Department files for similar sites as discussed above.

3. Conducted a "windshield survey" of selected routes within the wellhead protection areas (WHP's) to identify sites which may not be on the above lists.

4. Compared the developed lists to previous work developed by others.

Because the original inventory for the IWCR/LWC and Ford Road plans was prepared approximately in 1996, an updated the database was purchased (from Eco Search (formerly VISTA). The new database was reviewed for any significant differences.

The information provided in the inventory portion of the plans, combined with the updated database, will provide a sound basis for implementation of the management strategy for managing the potential sources of contamination.

Strategy for Management of Potential Sources of Contamination - The management plans where prepared by IWCR for wellhead protection and the comment letters issued by IDEM during their initial review of those documents. IDEM has not, as of yet, issued any comments on the Harbour plan. All documents prepared for IWCR's WHPP's used a similar format and, where possible, incorporated the results of IDEM's comments into plans prepared at a later date. The approach used in the management strategy uses a regulatory and an educational component. A wellfield protection ordinance requires a review by the local regulatory body to ensure that planned activities at a new or upgraded facility will have protective measures in place to protect against contamination of the groundwaters. The prepared management plans were consistent with the requirements of IDEM providing protection at the actual wellhead via fences or easement documents and by employing a policy of notifying potential sources of their location within a wellhead protection area (WHPA) and then using public service announcements and mass mailings of educational materials to the affected facilities. In addition, the mailings were specifically prepared for facilities sharing certain similarities, such as dry cleaners, metal

fabrication shops, etc. IWCR is in the process of entering all information from the inventory phase into a database which will then be used to allow IWCR to update the source information on a routine basis. IWCR, and/or the LPT, intend to visit all sites as an additional means of educating owners of potential sources of contamination. As an additional step in managing the potential sources of contamination, all wellhead protection areas have signs on all major thoroughfares identifying the presence of a WHPA.

It appears the plan adequately addresses the needs of the source company in being able to manage the potential sources of contamination.

Contingency Plan - The contingency plan documents where prepared by IWCR to demonstrate what actions would be taken by IWCR and affiliated subsidiaries in cases where all or portions of the groundwater supply were determined not to be usable. In all cases with the exception of the Harbour Water Company, IWCR has the capability of moving water supplies within its Waterworks to provide adequate supplies to all customers. At present, the Harbour Water System is not interconnected to the IWCR system. It does, however, have interconnections with neighboring water utilities in the event of any problems within their wellfield. It is IWCR's intent to connect Harbour to the northern portion of the IWCR system. As such, the contingency plan meets the requirements of IDEM, and also protects the customers of IWCR.

Description of Public Participation - Locally, public notifications were published informing of the need for public input into the planning process and local persons and groups were enlisted to participate in the LPT's. All meetings held by LPT's were open to the public. This process indicates that the public participation requirement was satisfied.

Description of Public Education Program - The public education program developed by IWCR and the various LPT's is described within the discussion of the Strategy for Management of Potential Sources of Contamination in the paragraph above. It appears adequate to meet the requirements of IDEM and will serve as a means for IWCR to educate the public and the facilities which are listed as the potential sources.

Other Issues Raised - A number of additional items are noted as follows:

- Groundwater Quality - Groundwater analytical laboratory reports provided by the IWCR for each of the IWCR wellfields from late 2000 to early 2001 indicate the analytical results for various volatile organic compounds (VOC's) revealing the concentration for trichloroethylene in two wells located in the Riverside/White River wellfield in excess of the EPA established Maximum Contaminant Level (MCL) of five (5) parts per billion (ppb) up to 11 ppb. In addition, a review of the analytical results for arsenic revealed the concentration for two wells located within the Riverside/White River wellfield in excess of the EPA established MCL of 50 ppb up to 74.3 ppb. The analytical result for arsenic was reported for one well Liberty wellfield with a concentration up to 20.1 parts per billion (ppb). A review of the analytical results for lead revealed the concentration above the EPA established Action Level of 15 ppb at 176.2 ppb. IWCR also reported various

VOCs detected in groundwater samples obtained from various wells for the Fall Creek, Ford Road, and South Wellfields.

The Safe Drinking Water Act requires EPA to revise the existing 50 ppb standard for arsenic in drinking water. In January 2001, EPA published a new standard for arsenic in drinking water that would require public water supplies to reduce arsenic to ten ppb by 2006. EPA announced on October 31, 2001 that the arsenic standard for drinking water will be lowered to ten (10) ppb by 2006. The Company's long term planning is required to determine an appropriate approach to this issue.

- Ravenswood and Rocky Ripple - In the Ravenswood and Rocky Ripple areas, both located on the north side of Indianapolis, the private wells have been contaminated to the point were the neighborhoods are taking precautions. The Marion County Health Department evaluated these wells and recommended that water service be provided and the wells be closed. IWCR estimated the cost to provide water service and close all the existing wells to be approximately $7.1 million.

  The hearing on this matter is scheduled for December 2001. The mechanism under which this rate increase is proceeding is under Indiana Code IC-8-1-32. The Senate Bill that enacted this project was SEA 490 of the 2000 General Assembly. The IURC cause number for this issue is 42804.

  According to IWCR, the costs to provide water and close all the wells are estimated at approximately $7.1 million. IWCR anticipates the construction of this project to commence in early 2002 and be completed in late 2003 or early 2004. The Company will be required to manage the construction of this project.

IWCR 5 YEAR CAPITAL / WORK PLAN

A review of the IWCR 5 Year Capital / Work Plan was conducted. The following is the methodology used by IWCR to develop the 5 Year Capital / Work Plan:

- This plan is current as of June 1, 2001.
- The 2001 costs are "realistic" numbers.
- All other costs are estimates prepared by IWCR, and are not finalized until the budget year.
- No inflation is included in any of the numbers. They are all in 2001 dollars.
- Expenditures for all projects are shown in the year that they are expected to be paid. As an example, the Fall Creek Station shows an expenditure of $200,000 in

2001 for the chemical conversion project. The chemical conversion project was completed in late 2000, but final invoices were not received until early 2001.

- Projects were listed in the IWCR 5 Year Capital / Work Plan with no budget. This indicates that an estimate has not been prepared for the project, but is shown to prevent the project from being overlooked. This does not mean that the project is unnecessary or a low priority. An estimate for the project will be prepared as part of the budgetary process for that year.

The projects were grouped by water treatment plant. The following is a partial and brief explanation of the necessity of the project. Several of the projects are aimed at eliminating gaseous chemicals, such as chlorine and ammonia. This is being done because of the number of regulations that have been promulgated on the storage and use of these chemicals, which have increased the operation and maintenance costs associated with using these chemicals.

White River Plant

The following are the projects that were reviewed for the White River Plant:

1. **Rehabilitate Aqueduct (Canal) –** Project consists of relining the channel to eliminate leakage. Previous structural report showed that the overall structure is in good condition.

2. **Canal Levee Survey –** Project consists of using ground-penetrating radar to find voids in the levees, which could cause failure of the levee. The levees are located between I-65 and 52nd Street, and the overall length is four miles.

3. **Lab Equipment –** This is an annual fund for upgrading major analyzing equipment for the main lab. Also includes small supplies for remote labs.

4. **Chlorine Contact Chamber –** Project is completed. The $1,500,000 expended in 2001 is for the last invoices.

5. **Chemical Conversion –** The project includes a new building for housing chemical feed systems for bleach, caustic soda, ammonia, and fluoride. The feed systems for carbon, polymer, and alum would remain in their existing locations. This project would modernize and consolidate the chemical feed system for this facility. It would also eliminate safety issues that are associated with the existing chlorine feed system.

6. **Residuals Handling –** The project includes a new building, two belt filter presses, a polymer feed system, a detention tank, and piping. Belt filter presses will deliver 30 percent solids, which would be needed to keep transportation costs reasonable. This does not include a force main from Fall Creek Station to White River Plant for conveying the Fall Creek Station sludge. In addition, the building would need to be expanded to accommodate a third belt filter press, which will be

needed to process the Fall Creek Station sludge. This project would eliminate sludge discharges to the sanitary sewer system, which are causing problems in the system and at the wastewater treatment plant.

7. **Additional Wellwater –** The project consists of developing wells capable of delivering 30 MGD to the White River Plant. This would enable IWCR to re-allocate 30 MGD of White River water to the White River North Plant.

8. **Water Rights –** The project would consist of acquiring the water rights for the wells in Item 7.

9. **Close Old Wells** – Abandoned wells that need to be closed in accordance with IDNR requirements.

10. **Upgrade Filter Bottoms –** Project consists of replacing the filter media and removing the tiles in two filters each year. This does not include backwash system, troughs, or structural repairs to filters. This project would increase the efficiency of the filters.

11. **Filter Gallery Tables –** Project consists of re-building filter control tables at a rate of two per year. This does not include controls, but does include some instrumentation, piping, etc. This project would simplify the operation of the filters.

12. **Increase Wash Water Capacity –** Project consists of adding pumps and storage capacity for filter wash water. Currently, there is insufficient wash water volume for backwashing the filters.

13. **Install Basin Dechlorination Feed –** The project would include the sodium bisulfite storage and feed equipment, controls, electrical, and metering. This chemical feed system would be used to dechlorinate any effluent from the basin before being discharged to a receiving water. This is to meet water quality standards.

14. **Upgrade Generator Capacity –** The standby generator would provide alternative power supply for the flocculation tanks, main lab, and other essential equipment. The White River Plant has two separate power feeds, but they have lost both feeds at one time. This would keep the plant operational under those circumstances.

White River North Plant

The following are the projects that were reviewed for the White River North Plant:

1. **Wells and Collecting Mains –** Project consists of constructing 2.5 miles of 30-inch water main and 12 wells in lieu of building a new remote water treatment plant. Wellfield would be located approximately 2.5 miles north on North River

Road. In the first two years, the main and one or two wells would be constructed. IWCR already owns the water rights. The water would be taken to the intake structure of the White River North Plant. The eventual plan is to connect the Harbour Water System to the White River North System, and eliminate the Harbour East and Harbour West Plants.

2. **Chlorine Contact Chamber –** Currently under construction. It is expected to be completed before the end of 2001.

3. **Raw Water Pump(s) –** The new raw water pump would be installed in the intake structure to handle the groundwater from the new north wells (See Item 1.).

4. **Expand Plant (Groundwater Treatment) –** The project would add four new filters, and increase capacity by 16 MGD. Another option to the plant expansion could be increasing the loading rates on the filters.

5. **Installing Unloading Dock Containment –** The project consists of constructing spill containment facilities at the chemical unloading area. The facilities would be the same as the one installed at the Fall Creek Station. This is being required by IDEM.

6. **Install Basin Dechlorination Feed –** The project would include a sodium bisulfite storage and feed equipment, controls, electrical, and metering. This chemical feed system would be used to dechlorinate any effluent from the basin before being discharged to a receiving water. This is to meet water quality standards.

7. **Interconnect and Supply to Harbour Water Company –** The project consists of constructing a high service discharge line. This line would be 2.5 miles of 36-inch to 42-inch concrete pipe that would connect to the Harbour Water Company distribution system, and would eliminate the Harbour East and Harbour West Plants.

Fall Creek Station

The following are the projects that were reviewed for the Fall Creek Station:

1. **Upgrade Pump Station –** The project consists of replacing high voltage feeds (4160 Volt, 460 Volt), replace switchgear, replace panels, replace one 4160 MCC, and replace two 480 Volt MCCs. The project does not include step-down transformers (4160 Volt to 480 Volt). This project would modernize a very antiquated and obsolete electrical feed system.

2. **Upgrade Heating –** The project consists of eliminating the old boiler system, and adding a new heating system that runs on natural gas. Does not include lead paint or asbestos abatement.

3. **Chlorine Contact Chamber –** Project is completed.

4. **Chemical Conversion –** Project is completed.

5. **Additional Wellwater –** The project consists of constructing approximately two to three wells per year with collecting lines. Project would reduce the amount of surface water being treated.

6. **Water Rights –** The project consists of purchasing the water rights for the new wells. The water rights would be purchased from the City of Indianapolis, State of Indiana, and the School for the Blind (See Item 5.).

7. **Filter Influent Valves –** The project consists of replacing the filter influent valves on four filters per year. All 12 filters would have their influent valves replaced at the end of the project. Valves are old, and have reached the end of their service life.

8. **Filter Effluent Valves –** The project consists of replacing the filter effluent valves on four filters per year (the same four filters that are having their influent valves replaced). All 12 filters would have their effluent valves replaced at the end of the project. Effluent valves are smaller and much easier to access than the influent valves. Valves are old, and have reached the end of their service life.

9. **Install Treatment Plant Generator –** The project consists of moving an existing generator from the White River Plant, which has no standby power. It does have three separate power feeds, but no single one is sufficient to supply electricity to the facility if the other two feeds are lost due to a power outage. The new generator for the White River Plant would need to be installed in order for this project to proceed (See Item 14 in the projects for the White River Plant).

10. **Install Basin Dechlorination Feed –** The project would include the sodium bisulfite storage and feed equipment, controls, electrical, and metering. This chemical feed system would be used to dechlorinate any effluent from the basin before being discharged to a receiving water. This is to meet water quality standards.

11. **Residuals Handling –** The project consists of installing a force main from the Fall Creek Station to the White River Plant. Does not include expansion of belt filter press building at the White River Plant or the addition of another belt filter press in the building.

Olio Road Plant

The following are the projects that were reviewed for the proposed Olio Road Plant:

1. **Olio Road Plant Land –** The project consists of purchasing land for a future plant that would be located northeast of Geist Reservoir.

2. **Olio Road Plant –** The project consists of building a new water plant. The new plant would be connected to the existing distribution system, and would supplement the Fall Creek Station. The Fall Creek Station can not be expanded due to a lack of land, and there is no space in the existing filter building for additional filters.

T.W. Moses Station

The following are the projects that were reviewed for the T.W. Moses Station:

1. **Chlorine Contact Chamber –** The project consists of adding baffling to the existing clearwell to increase CT and prevent short-circuiting during the backwashing of the filters.

2. **Install Basin Dechlorination Feed –** The project would include the sodium bisulfite storage and feed equipment, controls, electrical, and metering. This chemical feed system would be used to dechlorinate any effluent from the basin before being discharged to a receiving water. This is to meet water quality standards.

3. **Monitor Eagle Creek Reservoir Headwaters –** The project would consist of monitoring Eagle Creek for nutrient levels. The purpose of the project is to determine the source of the taste and odor problems associated with the water treated from the Eagle Creek Reservoir.

4. **Install Unloading Dock Containment –** The project would consist of constructing spill containment facilities at the chemical unloading area. The facilities would be the same as the one that was installed at the Fall Creek Station and planned for the White River North Plant. This is being required by IDEM.

5. **Groundwater Supply for Plant –** The project would consist of supplementing surface water from Eagle Creek Reservoir with groundwater from a wellfield located six miles from the plant to alleviate or eliminate taste and odor problems. The alternative to this project would be to install a granular activated carbon system with an ozonation system.

6. **Revamp Grounds Piping –** The project has been dropped from the IWCR 5 Year Capital / Work Plan. Project would have consisted of revamping the high-pressure service piping to eliminate head losses. The estimated cost was greater than the benefits that would have been gained.

7. **Auto-Transfer Switch for Standby Generator –** The project would consist of adding an auto-transfer switch to the standby generator and rewiring the bus.

Currently, the standby generator is started manually, and it takes 30 minutes to bring the standby generator online. The estimated cost is $200,000 (Additional project. Not listed in IWCR 5 Year Capital Plan.).

South Wellfield Plant

The following are the projects that were reviewed for the South Wellfield:

1. **Additional Wells and Collecting Line –** The first year of the project would consist of installing five new wells and collection lines. Two wells and collection lines would be installed in each of the following years. This project would increase the amount of source water to the plant. The area serviced by the South Wellfield Plant is one of the fastest growing areas in the City of Indianapolis area.

2. **Additional Pumps –** The project is tied to the plant expansion and new wells are being added in 2001. The project consists of adding two new high service pumps to pump the treated water to the distribution system.

3. **Install Unloading Dock Containment –** The project would consist of constructing spill containment facilities at the chemical unloading area. The facilities would be the same as the one that was installed at the Fall Creek Station and planned for the White River North Plant and T.W. Moses Plant. This is being required by IDEM.

4. **Expand Plant –** The project is being completed in 2001 with an estimated cost of $2,750,000.

Ford Road Plant

The following are the projects that were reviewed for the Ford Road Plant:

1. **Second Ground Storage Tank –** This tank would enable the distribution system to meet its peak volume loads.

2. **Chemical Conversion –** This project would consist of converting only the ammonia feed system from gaseous to liquid for safety reasons.

Geist Station

The following are the projects that were reviewed for the Geist Station:

1. **Fence –** This project is dependent on the sale of land near the Geist Station. Project would consist of relocating the security fence.

Bank Infiltration

1. **Bank Infiltration –** This pilot study is to determine if bank infiltration can reduce or eliminate solids and organic loadings to surface water treatment plants. Study would focus on wells close to surface water sources.

Radio System

1. **Replace Radio System –** This project would mostly consist of replacing all walkie-talkies and adding some limited SCADA functions at plants. The project does not include replacing Quindar tone telemetry system with Allen-Bradley PLCs.

Harbour Water

1. **Telemetry for West Plant and Tank –** This project would consist of adding I/O to the CCS, and would include some additional I/O such as pressure at the ground tanks at the plants.

2. **Telemetry for East Plant** – No Comment

3. **Miscellaneous –** Fund for making repairs to plants.

4. **Convert East and West Plants to Bleach –** The original project was to convert from gaseous chlorine to liquid bleach at each plant. However, tour of plants showed that conversion had been completed, but containment system and other appurtenances need to be built.

IWC–Morgan Plant

The following are the projects that were reviewed for the proposed IWC-Morgan Plant:

1. **Morgan Plant Land –** This project consists of purchasing land for a future plant that would be located in the extreme southern part of the distribution system. Currently, this system is receiving water from the South Wellfield Plant.

2. **Morgan Wells and Plant –** This project consists of building a new water plant for this service area.

Liberty Water

The following are the projects that were reviewed for the Liberty Water:

1. **Convert Chlorine to Bleach –** This project would consist of replacing the existing chlorine feed system, which consists of 150 pound gaseous chlorine feed system, with a chemical feed system for liquid bleach with a containment system

and all other appurtenances. System would be designed to supply enough bleach for breakpoint chlorination to remove ammonia from water source and provide disinfection.

2. **Contact Chamber –** Depends on whether current facility can meet new Ground Water Rules. This project would consist of building a contact chamber to provide additional contact time for chlorine disinfection (Additional Project. Not listed on the IWCR 5 Year Capital / Work Plan.).

Darlington

The following are the projects that were reviewed for Darlington:

1. **Convert from Gaseous Chlorine to Bleach –** This project would consist of converting existing gaseous chlorine system to liquid bleach with containment system and all other appurtenances.

2. **New Source of Supply –** Project is dependent on whether the Darlington system is sold. If system were kept, project would involve finding the new source through test drilling and constructing new wells and collecting lines. In addition, existing wells are close together, and they need to be spaced farther apart for source protection.

; Start Time: 8/7/01 00:00:00
; Interval: 01:00:00

PUMPING INCREMENTS

	AVON	BEN DAVIS	CASTLETON	CENTRAL	MORGAN	CUMBERLAND	FLACKVILLE	NORTHWEST	BROWN
0:00	0.15	0.39	0.48	1.21	0.02	0.42	0.27	0.07	0.02
1:00	0.12	0.39	0.50	1.27	0.02	0.41	0.23	0.07	0.02
2:00	0.13	0.39	0.56	1.12	0.02	0.41	0.22	0.07	0.02
3:00	0.16	0.39	0.68	1.19	0.02	0.44	0.23	0.07	0.02
4:00	0.20	0.40	0.94	1.10	0.02	0.46	0.24	0.06	0.02
5:00	0.23	0.45	1.15	1.16	0.02	0.62	0.30	0.06	0.02
6:00	0.31	0.55	1.33	1.40	0.02	0.73	0.38	0.06	0.02
7:00	0.29	0.59	1.34	1.55	0.02	0.78	0.38	0.06	0.02
8:00	0.32	0.59	1.22	1.52	0.02	0.75	0.38	0.06	0.02
9:00	0.30	0.59	1.12	1.65	0.02	0.76	0.37	0.06	0.02
10:00	0.29	0.60	1.01	1.73	0.02	0.76	0.38	0.06	0.02
11:00	0.27	0.61	0.93	1.68	0.02	0.76	0.38	0.07	0.02
12:00	0.25	0.60	0.84	1.67	0.02	0.75	0.38	0.07	0.02
13:00	0.27	0.59	0.80	1.74	0.02	0.74	0.37	0.07	0.02
14:00	0.23	0.58	0.87	1.74	0.02	0.74	0.37	0.07	0.02
15:00	0.29	0.57	0.84	1.69	0.02	0.74	0.37	0.06	0.02
16:00	0.29	0.60	0.94	1.66	0.02	0.74	0.40	0.07	0.02
17:00	0.34	0.62	1.19	1.60	0.02	0.86	0.45	0.06	0.02
18:00	0.44	0.68	1.51	1.58	0.02	0.94	0.48	0.04	0.02
19:00	0.49	0.71	1.79	1.56	0.02	0.98	0.50	0.05	0.02
20:00	0.48	0.68	1.74	1.58	0.02	0.95	0.51	0.05	0.02
21:00	0.38	0.60	1.27	1.53	0.02	0.83	0.48	0.09	0.02
22:00	0.28	0.52	0.88	1.46	0.02	0.69	0.40	0.07	0.02
23:00	0.17	0.46	0.63	1.41	0.02	0.51	0.32	0.07	0.02
TOTAL	6.66	13.17	24.57	35.81	0.52	16.74	8.78	1.53	0.49
MAX	0.49	0.71	1.79	1.74	0.02	0.98	0.51	0.09	0.02
MIN	0.12	0.39	0.48	1.10	0.02	0.41	0.22	0.04	0.02

	LAFAYETTE	MERIDIAN	NORTHEAST	SOUTHPORT	SOUTHWEST	ZIONSVILLE	SOUTHEAST	TOTAL
0:00	0.63	0.41	1.13	0.41	-0.01	0.03	0.11	5.73
1:00	0.64	0.45	1.00	0.43	-0.06	0.04	0.11	5.64
2:00	0.78	0.49	1.06	0.42	-0.03	0.05	0.09	5.80
3:00	0.92	0.51	1.14	0.38	0.01	0.07	0.13	6.36
4:00	1.07	0.43	1.03	0.41	0.06	0.11	0.14	6.70
5:00	1.20	0.44	1.20	0.51	0.08	0.12	0.21	7.78
6:00	1.30	0.58	1.43	0.60	0.21	0.13	0.26	9.32
7:00	1.27	0.55	1.54	0.64	0.24	0.11	0.23	9.61
8:00	1.14	0.62	1.58	0.63	0.22	0.10	0.22	9.38
9:00	1.07	0.57	1.63	0.63	0.18	0.08	0.22	9.29
10:00	0.96	0.53	1.60	0.67	0.16	0.07	0.21	9.07
11:00	0.86	0.53	1.62	0.59	0.20	0.07	0.21	8.80
12:00	0.85	0.50	1.57	0.64	0.19	0.07	0.20	8.61
13:00	0.84	0.54	1.56	0.59	0.17	0.06	0.19	8.58
14:00	0.82	0.50	1.58	0.59	0.18	0.06	0.20	8.56
15:00	0.81	0.51	1.52	0.62	0.16	0.06	0.20	8.49
16:00	0.89	0.51	1.60	0.62	0.21	0.08	0.25	8.91
17:00	1.01	0.50	1.61	0.73	0.26	0.09	0.29	9.65
18:00	1.23	0.63	1.76	0.76	0.33	0.12	0.40	10.94
19:00	1.42	0.69	1.89	0.82	0.37	0.13	0.45	11.90
20:00	1.44	0.61	1.86	0.73	0.40	0.11	0.40	11.59
21:00	1.17	0.51	1.64	0.69	0.25	0.09	0.31	9.86
22:00	0.96	0.52	1.40	0.58	0.12	0.07	0.20	8.18
23:00	0.77	0.47	1.35	0.46	-0.02	0.05	0.14	6.75
TOTAL	24.04	12.61	35.30	14.15	3.88	1.97	5.38	205.60
MAX	1.44	0.69	1.89	0.82	0.40	0.13	0.45	11.90
MIN	0.63	0.41	1.00	0.38	-0.06	0.03	0.09	5.64

PUMPAGE SUMMARY

; **Start Time: 8/7/01 00:00:00**
; **Interval: 23:59:59**

PRIMARY PUMPAGE	TOTAL
WHITE RIVER	70.33
RIVERSIDE	34.78
FALL CREEK	35.34
TW MOSES	19.78
WHITE RIVER NORTH	25.00
GEIST	2.80
HARDING	3.18
FORD ROAD	1.27
SOUTH WELL FIELD	13.25

BOOSTER PUMPAGE	TOTAL
MADISON	14.30
EDMONDSON	9.51
ARLINGTON	7.23
COLLEGE	3.06
ILLINOIS	4.80
ALLISONVILLE	6.45
NAST CHAPEL	0.51
NEW HARMONY	0.000022
ROCKVILLE	0.41
107TH STREET	4.93
BRIDGEPORT	1.93
300 NORTH	1.53
RAYMOND	6.16
STOP11	5.43

TOTAL PUMPAGE	205.72

RESERVOIR LEVEL	
FALL CREEK	6.9
RIVERSIDE	5.4
WHITE RIVER	9.4
TW MOSES	9.8
WHITE RIVER NORTH	6.0
SOUTH WELL FIELD	6.8

BLEEDER	TOTAL
WHITE RIVER EAST	26.46
BEN DAVIS	14.67
FLACKVILLE	8.78
PARK NORTH	2.71
PARK CENTRAL	6.13
MONTCALM	9.60
LANGSDALE	0.06
NORTHEAST	1.94
MADISON-CENTRAL	0.00
79TH STREET	0.00
ZIONSVILLE	1.91
SOUTHWEST	0.05
WRN (WEST)	9.68
DANDY TRAIL	0.02
PADDOCK RD	1.01
PITTSBORO	0.35
BROWN COUNTY	0.49

DISTRICT CONSUMPTION	TOTAL
AVON	6.66
BEN DAVIS	13.17
CASTLETON	24.57
CENTRAL	35.81
MORGAN	0.52
CUMBERLAND	16.74
FLACKVILLE	8.78
LAFAYETTE	24.04
MERIDIAN HILLS	12.61
NORTHEAST	35.30
SOUTHPORT	14.15
SOUTHWEST	3.88
ZIONSVILLE	1.97
NORTHWEST	1.53
SOUTHEAST	5.38
BROWN COUNTY	0.49

TOTAL CONSUMPTION	205.60

WHITE RIVER	TOTAL
PUMP #1	14.23
PUMP #2	14.29
PUMP #3	6.77
PUMP #4	5.51
PUMP #5	13.63
PUMP #6	10.75
PUMPS #7,#8,#9	5.16
TOTAL	70.33

RIVERSIDE	TOTAL
PUMP #1	31.60
PUMP #2	0.00
PUMP #3	3.18
PUMP #4	0.00
TOTAL	34.78

FALL CREEK	TOTAL
EAST	20.48
NORTH	14.89
WEST	-0.03
TOTAL	35.34

WHITE RIVER NORTH	TOTAL
EAST	15.32
WEST	9.68
TOTAL	25.00

SOUTH WELL FIELD	
EAST	5.32
WEST	7.94
TOTAL	13.25

TANK VOLUME	MG	CHG
ZIONSVILLE	0.29	-0.06
BEECH GROVE	1.03	0.10
ST. VINCENT	0.68	0.01
MADISON	3.37	0.04
EDMONDSON	2.22	0.08
300 NORTH	0.18	-0.09
BUNKERHILL	0.66	0.04

WELL PRODUCTION	
GEIST	2.77
HARDING	3.36
FORD ROAD	1.45
SOUTH WELL FIELD	14.89

BUILDING AREAS

Plant	Building	Building Type	Floor	Area, S.F.	Building Condition
Fall Creek	Filter Building	Structural Steel	Filter Gallery	21,845	
	Chemical Building	Structural Steel	Basement	4,080	
			1st, 2nd & 3rd Floors	12,240	
	Hypochlorite Building	Reinforced Concrete	Basement / Mezzanine	2,262	
	Pump Station	Structural Steel	Basement	14,000	
			Operating Floor	14,900	
			2nd Floor	1,976	
	Lamella Building	Reinforced Concrete	1st Floor	2,800	
	Garage	Pole Building	1st Floor	576	
General Office	Office Building	Reinforced Concrete	Basement	13,900	
			1st, 2nd & 3rd Floors	56,400	
	Office Addition	Structural Steel	1st Floor	15,600	
	Garage Offices	Structural Steel	1st Floor	7,100	
	Garage Space	Structural Steel	1st Floor	32,500	
	Meter Shop	Metal Building	1st Floor	2,900	
Riverside	Davis Building	Steel/Masonry	Basement	8,200	
			Operating Floor / Machine Shop	8,200	
			2nd & 3rd Floor Offices	4,000	
South Well Field	Pump Station	Reinforced Concrete	Operating Floor	9,800	
	Filter Building	Reinforced Concrete	Filter Gallery	13,706	
	Administration / Purification	Reinforced Concrete	Basement	5,520	
			1st Floor	5,731	
T.W. Moses	Treatment Plant	Reinforced Concrete	Basement	20,000	
			1st Floor	19,017	
	Intake	Reinforced Concrete	Operating Floor	2,124	

BUILDING AREAS

Plant	Building	Building Type	Floor	Area, S.F.	Building Condition
White River	Chemical Building	Reinforced Concrete	Basement	7,248	
			1st Floor	7,248	
			2nd, 3rd & 4th Floors	11,520	
	Chlorine Room / Plant Room	Reinforced Concrete	Basement/1st Floor	1,938	
	84MGD Filter Building	Structural Steel	Filter Gallery	40,000	
	12MGD Filter Building	Structural Steel	Filter Gallery	9,144	
	Bacteria Lab / Kitchen	Structural Steel	Basement	3,139	
			1st Floor	3,139	
	Chemical Lab	Structural Steel	1st Floor	7,350	
	Carbon Building	Reinforced Concrete	1st Floor	1,020	
	Rapid Mix	Reinforced Concrete	1st Floor	900	
	Intake	Masonry	1st Floor	600	
	Old Intake	Masonry	1st Floor	818	
	Garage	Concrete	1st Floor	1,386	
	Old Administration	Masonry	1st Floor	9,463	
	Lamella Building	Metal Building	1st Floor	2,795	
	Pump Station	Reinforced Concrete	Basement	927	
			Operating Floor	927	
	Stand-by Pump Station	Reinforced Concrete	Basement	1,275	
			Operating Floor	1,275	
	Pump Enclosure	Metal Building	1st Floor	1,185	
White River North	Filters / Operations	Reinforced Concrete	Basement	20,000	
			1st Floor	28,106	
	Pump Station	Structural Steel	Operating Floor	10,478	
	Intake	Reinforced Concrete	Operating Floor	3,843	

SUMMARY OF WELLS TO BE INSTALLED AND INSTALLATION COST ESTIMATES
INDIANAPOLIS WATER COMPANY
ENGINEER'S REPORT

WELLFIELD	NEW WELLS	EXPECTED YIELD (MGD)	Drilling, soil and pump testing, pump, motor and power ($120,000/well)
RIVERSIDE/WHITE RIVER	10	12	$1,200,000.00
FALL CREEK	10	10	$1,200,000.00
GIEST (1)	8	11.5	$960,000.00
RIVER ROAD	14	16.5	$1,680,000.00
SOUTH	12	16	$1,440,000.00
PARAGON	6	15	$720,000.00
WAVERLY	25	50	$3,000,000.00
WHITE-LICK CREEK AREA (	6	4	$720,000.00
(Heritage/US Aggregates)			$10,920,000.00
(1)	includes 2 @ 71st & Fall Creek Rd, I @ Fairwood & 5 @ Giest area		
(2)	number of wells assumed; based on IWC Water Budget Document		
D:\IWC\Management Agt\[Exhibit 3f - wells to be installed - Waterworks.XLS]Sheet1			

; **Start Time: 8/7/01 00:00:00**

; **Interval: 23:59:59**

PUMP & WELL HOURS & RUNS

PRIMARY		PUMP #1 HRS	PUMP #1 RUNS	PUMP #2 HRS	PUMP #2 RUNS	PUMP #3 HRS	PUMP #3 RUNS	PUMP #4 HRS	PUMP #4 RUNS	PUMP #5 HRS	PUMP #5 RUNS	PUMP #6 HRS	PUMP #6 RUNS	PUMP #7 HRS	PUMP #7 RUNS	PUMP #8 HRS	PUMP #8 RUNS	PUMP #9 HRS	PUMP #9 RUNS
WHITE RIVER	ELECTRIC	22	1	23	1	11	2	8	2	17	2	13	3						
	DIESEL													3	1	4	1	0	0
	WELLS																		
RIVERSIDE	HIGH SPEED	24	0	0	0	0	0	0	0										
	LOW SPEED	0	0	0	0	6	2												
	WELLS																		
FALL CREEK	HIGH LIFT	12	4			11	1	11	2	18	1	11	1						
	DIESEL			0	0														
	LOW LIFT	24	0	0	0	0	0	24	0	0	0								
	WELLS																		
TW MOSES	HIGH LIFT	13	4	14	2	24	0	22	1	19	1								
	LOW LIFT	8	2	8	2	24	0	16	0										
WHITE RIVER N	ELECTRIC	9	9			20	2	18	3							12	7	10	2
	DIESEL			0	0					0	0								
GEIST	ELECTRIC	16	6	16	6	1	1	3	1	6	0								
	WELLS																		
HARDING	ELECTRIC	6	4	14	6	0	0	0	0	18	1								
	WELLS																		
FORD ROAD	ELECTRIC	14	2	6	1	0	0												
	WELLS	24	0	24	0														
S. WELL FIELD	ELECTRIC	15	5	17	2	24	0												
	DIESEL							4	1	3	1								
	WELLS	20	1	24	0	24	0	22	1	22	1	21	1	24	0	24	0		
	WELLS #	# 5		# 6		# 7		# 8		# 10		# 11		# 12		# 13			

BOOSTERS																			
MADISON	ELECTRIC	14	2	11	2	0	0	14	3	24	0	3	1						
	GAS					0	0			0	0								
EDMONDSON	ELECTRIC			12	3			0	0	16	2								
	DIESEL					3	1												
ARLINGTON	ELECTRIC	0	0	14	3	23	0	23	1										
	GAS					0	0												
COLLEGE	ELECTRIC	24	0	24	0	0	0												
	GAS					0	0												
ILLINOIS	ELECTRIC	17	2	0	0	24	0	0	0										
ALLISONVILLE	ELECTRIC					1	0	11	1	13	2			0	0	6	1		
	GAS							0	0										
ROCKVILLE	ELECTRIC							3	1	3	1	0	1	0	0				
BRIDGEPORT	ELECTRIC	0	0	3	2	15	6	15	2										
107TH STREET	ELECTRIC	0	0	9	3	15	2	13	2										
300 NORTH	ELECTRIC	20	2	5	7	0	0												
RAYMOND	ELECTRIC	14	0	24	0														
	DIESEL							19	1										
STOP 11	ELECTRIC			16	1			19	1										
	DIESEL					0	0												
NAST CHAPEL	ELECTRIC	5	4	4	4														
NEW HARMONY	ELECTRIC	4	182	4	184														

SUMMARY OF CURRENTLY USED WELLS, YIELDS AND CONDITION
INDIANAPOLIS WATER COMPANY
ENGINEER'S REPORT

GENERAL INFORMATION			WELL DATA				SCREEN DATA					TESTING AND MAINTENANCE DATA					COSTING INFORMATION	
WELLFIELD	WELL #	CAPACITY (GPM)	YEAR INSTALLED	DEPTH (FT)	DIAMETER (INCHES)	FORMATION	LENGTH (FT)	MATERIAL	INTERVAL depth below grad	DIAMETER (INCHES)	SLOT SIZE	LAST TEST DATE	FLOW (GPM) [Q/S in gpm/ft]	LAST CLEANING	OTHER	COMMENTS	ESTIMATED COSTS	COMMENTS
RIVERSIDE	RS 17	700	1920's	391	10	LS	N/A	N/A	N/A	N/A	N/A	6/28/2001	266 {8.04}	1994	Submersible	Motor replaced 7/01; needs pump replaced; has line restriction	$40,000	
	RS 18	700	1920's	400	10	LS	N/A	N/A	N/A	N/A	N/A	4/20/1995	720 {23.226}	1994	Submersible	Has line restriction;	unknown	
(1)	RS 19	700	1920's	392	10	LS	N/A	N/A	N/A	N/A	N/A	4/27/1995	770 {30.654}	1994	Submersible	Has line restriction;	unknown	
	RS 2	650	1920's	297	10	LS	N/A	N/A	N/A	N/A	N/A	5/18/2001	697 {26.51}	1994	Submersible	Pump/column replaced 5/01		
	RS 22	700	1920's	271	10	LS	N/A	N/A	N/A	N/A	N/A	TBD	TBD	1994	Submersible	Out of service due to corroded casing and bowls; scheduled for new grundfoss ss pump.	$40,000	
	RS 26	600	1920's	285	10	LS	N/A	N/A	N/A	N/A	N/A	6/26/2001	482 {32.817}	1994	Submersible	pump needs to be rebuilt	$40,000	
	RS 27	800	1920's	416	10	LS	N/A	N/A	N/A	N/A	N/A	6/2/1994	750 {41.41}	1994	Submersible; w/pitless adaptor	needs to be evaluated	*	allowance only
	RS 28	650	1920's	180	10	LS	N/A	N/A	N/A	N/A	N/A	?	?	?	submersible	needs to be evaluated	*	allowance only
	RS 29	600	1920's	290	10	LS	N/A	N/A	N/A	N/A	N/A	4/27/2001	828 {25.34}	1994	Submersible; w/pitless adaptor	pump/column replaced 4/00; needs check valve replaced/repaired	$35,000	repacew/singer valve
(2)	RS 3	260	1920's	297	10	LS	N/A	N/A	N/A	N/A	N/A	?	?	?		pump/motor replaced 2001		
	RS 7	900	1920's	196	8	LS	N/A	N/A	N/A	N/A	N/A	5/12/1994	750 {99.5}	1994	Submersible	pump/motor replaced 2000		
	RS 8	900	1920's	268	10	LS	N/A	N/A	N/A	N/A	N/A	4/18/1994	750 {136.12}	1994	Submersible	pump/motor replaced 2000		
	RS 9	700	1920's	251	10	LS	N/A	N/A	N/A	N/A	N/A	4/25/1994	750 {24.74}	1994	Submersible	pump/motor replaced 2000		
	RS A	1400	1995	97	16	S&G	20	SS	79-99	16	0.08	7/5/2000	1364 {40.36}	2000		pump/motor repaired 6/00		
		10000	**GPM or**	**14.40**	**MGD**											**subtotal**	**$155,000**	
WHITE RIVER	WR 3	1350	1936	70	38	S&G	35	Steel-Shutter	35-70	38	#4	3/31/1983	1000 {84}	?	turbine pump	pump and motor rebuilt 5/01; well platform rebuilt 5/01		
	WR6	1400	1967	68.25	26	S&G						3/31/1983	1000 {66}	?	turbine pump	entire motor/valve assembly needs to be raised up out of existing vault;		
																well is in lawn area of M. Broom Co.	$75,000	
	WR7	1000	1967	77	26	S&G	20	SS-Shutter	57-77	26	#4	6/30/2000	1164 {46.6}	2000	turbine pump	well cleaned 6/00; pump/motor repaired; check valve is buried	$35,000	repacew/singer valve
	WR8	900	1967	77	26	S&G	20	SS-Shutter	57-77	26	#4	4/26/2000	706 {31.97}	2000	turbine pump	well cleaned 6/00; pump/motor repaired; check valve is buried	$35,000	repacew/singer valve
	WR 9	1400	1967	80	30	S&G	20	SS-Shutter	60-80	30	#4	5/14/1998	1645 {51.81}	1998	turbine pump	well cleaned 7/98; pump motor repaired		
		6050	**GPM or**	**8.71**	**MGD**											**subtotal**	**$145,000**	
White River and Riverside Total				**16050**	**GPM or**	**23.11**	**MGD**											
FALL CREEK	FC 2	1400	1920's	326	10	LS	N/A	N/A	N/A	N/A	N/A	4/26/1982	1016 {50.8}	?	submersible installation	Needs to be cleaned' note that well head is located approx. 50 ft from a railroad track,	*	allowance only
																and a construction company has a temporary fuel AST within about 75 ft.		
	FC 5	1000	1920's	360	10	LS	N/A	N/A	N/A	N/A	N/A	1/3/1986	393 {15.12}	1986	submersible installation	shock chlorinated in 1986; should be cleaned	*	allowance only
	FC 7	300	1920's	280	10	LS	N/A	N/A	N/A	N/A	N/A	3/16/1994	961 {43.6}	?	submersible installation	should be cleaned; needs to be flow tested	*	allowance only
	FC 8	600	1920's	305	10	LS	N/A	N/A	N/A	N/A	N/A	7/21/1987	495 {N/A}	?	submersible installation	should be inspected	*	allowance only
	FC 11	1400	1920's	351	10	LS	N/A	N/A	N/A	N/A	N/A	N/A	N/A	?	deep well pump	pump located inside 10 ft deep manhole/pit		
	FC 17	1000	1989	82	16	S&G	22.5	SS	59-81.5	13.01	0.08	5/20/1988	760 {52.6}	never	deep well pump	no check valve on discharge line; needs to be inspected and cleaned	$35,000	repacew/singer valve
	FC 18	1400	1989	103	24	S&G	17	SS	86-103	24	0.12	6/22/2001	1450 {62.422}	never	submersible installation	mislabeled, should be # 19; in service 3/01		
	FC 19	700	1989	82	24	S&G	17	SS	60-77	24	0.12	6/22/2001	797 {78.29}	never	submersible installation	mislabeled, should be # 18; in service 3/01		
		7800	**GPM or**	**11.23**	**MGD**											**subtotal**	**$35,000**	

SUMMARY OF CURRENTLY USED WELLS, YIELDS AND CONDITION
INDIANAPOLIS WATER COMPANY
ENGINEER'S REPORT

GENERAL INFORMATION			WELL DATA				SCREEN DATA					TESTING AND MAINTENANCE DATA					COSTING INFORMATION	
WELLFIELD	WELL #	CAPACITY (GPM)	YEAR INSTALLED	DEPTH (FT)	DIAMETER (INCHES)	FORMATION	LENGTH (FT)	MATERIAL	INTERVAL depth below grad	DIAMETER (INCHES)	SLOT SIZE	LAST TEST DATE	FLOW (GPM) [Q/S in gpm/ft]	LAST CLEANING	OTHER	COMMENTS	ESTIMATED COSTS	COMMENTS
SOUTH	SWF 1	1400	1989	110	24	S&G	25.33	SS	81-102.67	24	0.12-0.1	7/10/2000	910 {31.8}	2000		discharges to Harding Station; should be re-tested and tank surged;	*	allowance only
																needs throtting valve		
	SWF 2	1400	1989	110	24	S&G	25	SS	80-105	24	.12-.04-.12	1/27/1989	2232 {82.6}	never		discharges to Harding Station; needs throttling valve	$35,000	repacew/singer valve
	SWF 3	1400	1989	111	24	S&G	30	SS	80-110	24	0.08	6/19/2000	1730 {39.9}	2000 & 2001		discharges to Harding Station; existing check and gate valves need repaired	$35,000	repacew/singer valve
																or install throttling valve		
	SWF 4	1400	1993	94	20	S&G	20	SS	70-80, 84-94	18	0.13	6/1/2001	1400	2001		discharges to Harding Station; presently can only be tank cleaned;	unknown	
																should install throttling valve; screen warped during last cleaning, still functional		
	SWF 5	1000	1997	94	16	S&G	15	SS	79-94	16	0.07	2/20/1997	1410 {27.14}	never		should be cleaned	*	allowance only
	SWF 6	1400	1997	95	24	S&G	20	SS	75-95	24	0.07	6/19/1997	1930 {40.58}	never		should be cleaned	*	allowance only
	SWF 7	1400	1997	66	16	S&G	15	SS	51-66	16	0.06	4/17/1997	1620 {68.94}	never				
	SWF 8	1000	1997	85	16	S&G	15	SS	70-85	16	0.06	1/30/1997	1600 {47.86}	never		should be cleaned	*	allowance only
not equipped	SWF 9	1900	1997	96	24	S&G	20	SS	76-96	24	0.075	3/10/1997	1700 {53.56}	never				
	SWF 10	1800	1997	91	24	S&G	20	SS	71-91	24	0.075	5/1/1997	2100 {85.53}	never				
	SWF 11	1400	1997	93	24	S&G	24	SS	68.5-77.25, 8	24	0.075 (4' of blank)	5/20/1997	1920 {54.78}	never				
	SWF 12	2100	1999	95	24	S&G	25	SS	70-95	24	0.085	7/29/1999	3019 {142.73}	never				
	SWF 13	1000	1999	104	16	S&G	20	SS	84-104	16	0.06 (9'), 0.07 (11')	8/10/1999	2110 {45.76}	never				
(3)	SWF 14	1200	2001	92	18	S&G	22	SS	70-92	18	0.075			New		not operational, awaiting power to site		
(3)	SWF 15	1400	2001	92	18	S&G	22	SS	70-92	18	0.075			New		not operational, awaiting power to site		
(3)	SWF 16	1800	2001	87	24	S&G	22	SS	65-87	24	0.1			New		not operational, awaiting power to site		
(3)	SWF 17	1000	2001	80	18	S&G	20	SS	59.5-79.5	18	0.09			New		not operational, awaiting power to site		
(3)	SWF 18	1000	2001	96	24	S&G	26	SS	70-96	22	0.08 (4'), blank (2'), 0.06 (10')			New		not operational, awaiting power to site		
(3)	SWF 19	1400	2001	95	24	S&G	21	SS	74-95	22	0.075 (6'), 0.09 (15')			New		not operational, awaiting power to site		
		16700	**GPM or**	**24.05**	**MGD**											**subtotal**	**$70,000**	
		HARDING ONLY		**8.06**	**MGD**													
		SWF ONLY		**15.98**	**MGD**													

SUMMARY OF CURRENTLY USED WELLS, YIELDS AND CONDITION
INDIANAPOLIS WATER COMPANY
ENGINEER'S REPORT

GENERAL INFORMATION			WELL DATA				SCREEN DATA					TESTING AND MAINTENANCE DATA					COSTING INFORMATION	
WELLFIELD	WELL #	CAPACITY (GPM)	YEAR INSTALLED	DEPTH (FT)	DIAMETER (INCHES)	FORMATION	LENGTH (FT)	MATERIAL	INTERVAL depth below grad	DIAMETER (INCHES)	SLOT SIZE	LAST TEST DATE	FLOW (GPM) [Q/S in gpm/ft]	LAST CLEANING	OTHER	COMMENTS	ESTIMATED COSTS	COMMENTS
GIEST	GW 1	1400	1989	97	18	S&G	23.5	SS	74-96.5	18	0.035 (3.6'), 0.09 (13')	4/11/2000	1408 {33.9}	2000		throttling valve installed 2000		
	GW 2	1400	1989	101	24	S&G	24.5	SS	77-101.5	24	0.06	5/3/2000	1408 {26.8}	2000		throttling valve installed 2000		
	GW 3	1400	1989	97	24	S&G	25	SS	72-97	24	0.05	5/19/2000	1408 {30.3}	2000		throttling valve installed 2000		
		4200	**GPM or**	**6.05**	**MGD**													
FORD ROAD	FR 1	600	1979	59	18x72	S&G	30	SS-Shutter	29-59	18	#4	1/2/1998	816 {130.56}	1997		needs to be re-inspected	*	allowance only
	FR 2	400	1979	56	18x72	S&G	10	SS-Shutter	46-56	18	#4	12/30/1997	527 {43.303}	1997		needs to be re-inspected	*	allowance only
	FR 3	500	1998	84	16	S&G	11	SS	73-84	16	0.055	8/19/1998	500 {9.07}	never		has elevated ammonia levels		
	FR 4	300	1998	91	16	S&G	13	SS	78-91	16	0.055	9/9/1998	302 {6.16}	never				
		1800	**GPM or**	**2.59**	**MGD**													
LIBERTY	LW 1	600	1993	86	12	S&G												
	LW 2	600	1996	80	12	S&G												
		1200	**GPM or**	**1.73**	**MGD**													
HARBOUR WEST	HWC 1	250				S&G												
	HWC 2	1000				S&G												
	HWC 5	450				S&G												
(4)	HWC 6	950				S&G												
	HWC 8	300				S&G												
	HWC 10	400	1999			S&G												
		2400	**GPM or**	**3.46**	**MGD**													
HARBOUR EAST	HWC 7	900	1992		20	S&G												
	HWC 9	900	1997		20	S&G												
	HWC 11	900	1999		16	S&G												
		2700	**GPM or**	**3.89**	**MGD**													
TOTAL HARBOUR		**5100**	**GPM or**	**7.34**	**MGD**													
DARLINGTON	1	325	1965	105	10	S&G W/ BR	12	Bronze	28-40	10	0.06							
	2	90	1967	40	10	S&G W/ BR	10	Bronze	30-40	10	0.06							
	3	115	1981	60	10	S&G W/ BR	10	SS	35-45	10	0.1							
		530	**GPM or**	**0.76**	**MGD**													
																subtotals	$405,000	
																*-Estimated allowance	$40,000	
TOTAL GROUNDWATER ALL WELLFIELDS				**76.87**	**MGD**											**Totals**	**$445,000**	

(1) Connected, but scheduled to be abandoned
(2) Cooling water only, yield not included in total
(3) Not Activated as of 8/16/01; should be activated within one or two weeks-awaiting power to wellhead
(4) Acts as backup to HWC # 2; only one of these well active at any time, therefore, in flow calculations smallest value used.

SUMMARY OF WELLS TO BE ABANDONED AND ABANDONMENT COST ESTIMATES
INDIANAPOLIS WATER COMPANY
ENGINEER'S REPORT

GENERAL INFORMATION		WELL DATA				COSTING INFORMATION		
WELLFIELD	WELL #	YEAR INSTALLED	DEPTH (FT)	DIAMETER (INCHES)	FORMATION	GROUTING (1)	RESTORATION (2) allowance	TOTAL PER WELL
RIVERSIDE	RS 6	1929	310	10	Bedrock	$3,100	$8,500	$12,000
	RS 10	1969 (?)	291	10	Bedrock	$2,910	$8,500	$12,000
	RS 11	1968 ?	339	10	Bedrock	$3,390	$8,500	$12,000
	RS 12	1929	339	10	Bedrock	$3,390	$8,500	$12,000
	RS 13	1929	347	10	Bedrock	$3,470	$8,500	$12,000
	RS 14	1928	349	10	Bedrock	$3,490	$8,500	$12,000
obs. well, depth assumed	RS 15		350	10	Bedrock	$3,500	$8,500	$12,000
	RS 16	1968 ?	352	10	Bedrock	$3,520	$8,500	$12,000
	RS 19	1969 (?)	392	10	Bedrock	$3,920	$8,500	$13,000
	RS 20	1968	392	10	Bedrock	$3,920	$8,500	$13,000
	RS 21	1968	268	10	Bedrock	$2,680	$8,500	$12,000
	RS 23	1968	319	10	Bedrock	$3,190	$8,500	$12,000
	RS 24	1968	324	10	Bedrock	$3,240	$8,500	$12,000
	RS 25	?	308	10	Bedrock	$3,080	$8,500	$12,000
WHITE RIVER	WR 5	1920's	70	26	Sand & Gravel	$2,100	$8,500	$11,000
assumed depth	WR 4 (?)	1920's (?)	70	26	Sand & Gravel	$2,100	$8,500	$11,000
FALL CREEK	FC 1	1920's	330	10	Bedrock	$2,475	$8,500	$11,000
	FC 6	1968	325	10	Bedrock	$2,438	$8,500	$11,000
	FC 12	1913	390	10	Bedrock	$2,730	$8,500	$11,000
	FC 13	1915	324	10	Bedrock	$2,430	$8,500	$11,000
	FC 14	1923	329	10	Bedrock	$2,468	$8,500	$11,000
obs well	FC 15		300	10	Bedrock	$2,250	$8,500	$11,000
	FC 16	1968	300	10	Bedrock	$2,250	$8,500	$11,000
HARBOUR WEST	HWC 4		120		Sand & Gravel	$900	$8,500	$10,000
assumed depth for HWC 4								
	(1)	Includes grouting, cutting casing below gradw and concrete cap						
	(2)	Allowance to restore site to match surrounding areas.						
ESTIMATED TOTAL ABANDONMENT COSTS								**$279,000**

D:\IWC\Management Agt\[Exhibit 3i - summary of wells to be abandoned - Waterworks.XLS]Sheet1

SYSTEM PRESSURES

; Start Time: 8/7/01 00:00:00
; Interval: 23:59:59

DISCHARGE PRESSURES	AVG	MAX	MIN
WHITE RIVER	118	126	109
RIVERSIDE	64	70	58
FALL CREEK	103	108	96
TW MOSES	119	129	99
WHITE RIVER NORTH	119	152	-2
GEIST	75	86	62
HARDING	107	115	94
FORD ROAD	105	116	84
SOUTH WELL FIELD	124	132	113

BOOSTERS	AVG	MAX	MIN
MADISON	104	112	89
EDMONDSON	85	101	68
ARLINGTON	80	91	65
COLLEGE	112	117	108
ILLINOIS	113	122	98
ALLISONVILLE	101	120	70
ROCKVILLE	99	113	92
NAST CHAPEL	132	157	96
NEW HARMONY	120	77	66
BRIDGEPORT	110	120	98
107TH STREET	94	108	68
300 NORTH	102	133	92
RAYMOND	115	124	102
STOP 11	97	111	85

DISTRICT PRESSURES	AVG	MAX	MIN
CENTRAL	55	63	50
MANUAL HS	74	78	69
BG FIRE	64	72	56
BUNKER HILL	61	66	57
COUNTY LINE	62	75	50
PARK FLETCHER	68	79	51
WEST NEWTON	83	90	75
LINK BELT	63	71	51
PRESTWICK	59	65	47
SCHOOL 109	60	72	4
62ND GUION	47	58	35
MAYFLOWER	60	71	46
KEYSTONE CROSSING	89	100	80
CASTLETON FIRE	85	95	69
NEW PALESTINE	69	82	53
21ST & MITT	70	82	54
16ST & RITTER	59	66	52

SUCTION PRESSURES	AVG	MAX	MIN
ALLISONVILLE	59	85	38
ARLINGTON	41	46	32
COLLEGE	73	92	58
ILLINOIS	74	94	61
NAST CHAPEL	101	120	77
ROCKVILLE	46	55	29
BRIDGEPORT	72	89	59
107TH STREET	38	58	27
FORD ROAD	3	5	1
300 NORTH	47	48	43
RAYMOND STREET	43	57	32
STOP 11	55	65	42

BLEEDER PRESSURES	AVG	MAX	MIN
BEN DAVIS	105	113	98
FLACKVILLE	103	109	97
79TH STREET (LAF)	106	118	89
SOUTHWEST (SOPORT)	82	94	58
SOUTHWEST (SW)	79	89	-35
WHITE RIVER NORTH (W)	116	130	32
DANDY TRAIL (LAF)	83	87	76
DANDY TRAIL (BD)	61	72	42
PITTSBORO (AVON)	69	102	58
PITTSBORO (DISCHARGE)	58	76	49
PADDOCK RD	73	46	68